Precision SHOOTING

January 1959
Vol. 3, No. 9
35 cents

Apr. 59

THIS MONTH

DOUBLE ACTION FOR ACCURACY
William E. Peterson

A CASE SIZING LUBRICANT
Allan S. Noyes

BEDDING MATERIAL EXPERIMENT
Mason Williams

BITS ABOUT BULLETS
Phil Teachout

a magazine for Shooters by Shooters

Precision Shooting is published monthly by Precision Shooting, Inc.

Editorial and business office at 64 Depot Street, Lyndonville, Vt.

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Subscription rates:—To the U. S., Canada and Mexico, 1 year $4.00, 2 years $7.00, 3 years $9.00. All other countries $1.00 per year additional.

Change of address requires 30 days' notice.

Authorized advertising representatives:—Howland & Howland, Inc., 114 East 32nd Street, New York 16, N. Y.

Precision Shooting is entered at Post Office, St. Johnsbury, Vt. as second-class mail.

OFFICIAL SCORE BULLETINS

Some recent letters which mention disappointment over late and poor official score bulletins from matches and leagues, plus some personal experiences, prompt this bit of writing.

Prompt, accurate and complete official score bulletins are a definite responsibility of clubs conducting tournaments, and of the officers of league competitions. Registration fees paid by competitors are presumed to cover in whole or in part the cost of complete competition operation, and official score bulletins are a part of that complete operation. It is a responsibiltiy that is, in all too many cases, apparently regarded lightly by match or league managing officials.

Official match score bulletins that do not reach competitors until weeks, or in some cases, even months after the match is fired; which are sometimes inaccurate or partially illegible and frequently incomplete; seriously harm the prestige of matches that may otherwise be reasonably well conducted. League score bulletins that are more than a week late, after each round of matches, are unsatisfactory and even unfair to competitors.

Official score bulletins, reasonably accurate and complete, that are delivered to competitors within a week, or at most ten days after a match is held are jewels indeed. They make possible minor irritations experienced at the actual match more easily forgotten, and help create a desire to attend the next match conducted by that club.

Promptness of compiling, printing or duplicating, and mailing of official match or league score bulletins is the paramount thing. Well arranged and accurate listing of scores fired by all competitors is a responsibility of the competition management. Some few evident typographical errors and inaccuracies may be excusable but certainly not desirable. Proof reading before printing or duplicating can minimize such errors. The complete score bulletin for tournaments should carry a listing of names and addresses of all competitors. This is important for two chief reasons. A competitor may have made the acquaintance of another shooter at a match whom he may later wish to contact, but did not get the person's address while at the match—no problem at all to the competitor if all names and addresses are listed in the official bulletin. The listed names and addresses of competitors is very helpful to other match sponsors for preparing program mailing lists—a matter of "mutual aid." (From the selfish standpoint, registration lists on match score bulletins we receive aid Precision SHOOTING to get acquainted with new prospective friends and subscribers.)

Preparing and mailing official score bulletins for tournaments is the individual responsibility of the chief statistical officer. We well know, from both report and personal experience, that the complete job of official score bulletin preparation and mailing is all too frequently dropped in the individual lap of the statistical officer after the match is over, and that it is a time consuming and difficult job for one person to do properly. However, if a person accepts the job of chief statistical officer for a tournament, he/she should recognize and accept the responsibility for enlisting help to do the bulletin job promptly, or to do it one's self.

League bulletins are the responsibility of the league manager, or the official scorer and statistical officer. A person accepting such a job should recognize and accept the responsibility of a **duty** to be done at specified times—not as an ornery chore to be done "when convenient."

Shooting competition management may be divided into three stages—preparation, operation and clean-up. If the preparation is good, the operation should be easy and smooth. Official score bulletin preparation and mailing is an important division of the "clean-up" stage and should be regarded as a **service** responsibility to the competitors who have paid their required fees and expect "value received."

In promptly providing competitors with accurate and complete official score bulletin, tournament sponsoring clubs are not just doing the competitors a "favor"—they are delivering a service that has been paid for in advance, and expected by the competitors.

PHT

COVER PHOTO

George Phillips, a business machine mechanic by trade who lives in Flushing, New York, and who shoots the target revolver double-action, with trophies, plaques, medals and other prizes he has won in handgun competitions.

Phillips has been New York State Pistol Champion five times, New Jersey State Champion twice, New York City Champion two or three times, Northeastern .22 cal. championship twice, won the International Aggregate at Camp Perry in 1957 and was high national Civilian Master in 1958. He has held three national pistol records.

He writes: "The biggest kick I got out of winning any match was at Camp Perry in 1957 in the Olympic Aggregate. As you probably know, the aggregate consists of 60 shots slow-fire at 50 meters and 60 rapid-fire at 25 meters on the 5 silhouette targets. Almost all the competitors, and positively the good ones, were using "Free" pistols at $200 per for slow fire and special rapid-fire guns using shorts for the bobbers. So here I come along with my two-bit Ruger and standard velocity Rem. Kleanbore in both events—place second in both and first in the overall aggregate. I guess it was a case of being too dumb to realize that you can't win with equipment like that. I had to laugh, especially when Pinion absolutely refused to believe it when somebody told him what I had used."

SHOOTING RULES

When target shooters get together, and even in letters to editors, there is frequent criticism of the shooting rules governing competitions recognized by our largest national shooting organization, the National Rifle Association. Some of that criticism we believe is quite reasonably justified, but some of it seems to reflect the pet ideas of individuals who may not have given due consideration to what may be best for the greatest number of competitors.

The necessity for rules for any organized competitive sport is, of course, to provide uniformity of competitive conditions in order that results may be comparable and meaningful records kept. Rules that go beyond this simple need are apt to be more harmful than helpful to any competitive sport, and we believe that to be especially true of essentially participator sports, such as shooting.

It is this writer's constant contention that rules for competitive sports should be as few as will assure uniformity of competition, and will provide for "equality of opportunity" for the competitors. That rules shall be so clearly stated that there be no need or possibility of various "interpretations" by referees, judges or competition officials. That rules adopted be willingly observed by competitors and be impartially enforced by all competition officials. That rules should **always** present a challenge for superior performance. That rules should not stifle progress in improvement of the equipment used, but should rather encourage such improvement.

The good sportsman will observe the "spirit" as well as the letter of the established rules for a sport or competition and will regard with disdain those who may crowd the borderline of any rule in order to gain some real or fancied advantage over other competitors; with the possible exception of some who may be attempting to demonstrate the weakness of some rule and who make their purpose clearly understood. However, the good sportsman will do his utmost to have what he considers a weak or unfair rule corrected or discarded, but observing the rule while it is in effect.

Shooting rules are changed from time to time as the need or desire for change is indicated by a large number of competitors throughout the country. Some rule changes do not meet with universal acclaim of all competitors, but if the rule is basically sound it will usually endure, though perhaps with some correctional revisions. Some few rules adopted appear to be from the pet ideas of some individual or relatively small group; and not infrequently such rules prove impractical or positively undesirable, resulting in their being abandoned after trial. Some rules are abandoned because the seeming need for them has passed, some because of changing conditions and some, seemingly, merely because they are "not popular."

As with civil law, the most insidious type of bad rule is that which remains on the books but is rather universally ignored or disregarded. Such rules tend to make some competitors hold other rules in light regard or even contempt and eventually, in some cases, lead to an attitude of "what can I get away with?" rather than "What is right?". An example of such a rule is, in this writer's opinion, the minimum three pound trigger pull for rifles rule.

Let it be clearly undrestood that this writer has no fault to find with a three

pound minimum pull for rifle triggers or with a rule setting any reasonable minimum weight trigger pull. His contention that this is "presently" a bad rule because it is so universally ignored in the U. S. by competitors and match officials, alike. I haven't seen a trigger-pull check made at a U. S. match in years, other than for team members firing international postal matches. I suspect that a set of standard trigger weights could not be found on the range at most tournaments. Even the rule itself provides that range officials "may" test trigger pulls before or at any time during a match, rather than that they "shall" so test trigger pulls. That makes the rule possibly discriminatory as well as normally practically meaningless. I don't even know that the trigger on my own smallbore rifle complies with the three pound minimum trigger pull rule, since it hasn't been checked for quite a long time, but if I went to a match in neighboring Canada I would very soon know if the rifle had a three pound pull or not—it would have to pick up safely a three pound weight before I would be allowed to fire in the match, and if anyone suspected that I had set it back to a lighter pull it would probably be checked again while the match was in progress. Canadian shooters, and those U. S. shooters who regularly compete in Canadian matches, expect the trigger pull rule to be enforced, and respect it.

Some rules have been so ambiguous as to either invite attempt at evasion or to result in a seeming attempt at evasion due to misunderstanding. It is this writer's contention that any shooting rule that does not provide for uniform enforcement, or any rule which is so ambiguous as to permit more than one interpretation by match officials, is a bad rule and should be corrected, clarified or abandoned.

In general, our shooting rules do provide for fair and uniform competition for all. The few that do not provide for that, for everyone, everywhere, should be corrected or abandoned at the earliest possible date. PHT

CIVILIAN USE OF NATIONAL GUARD RANGES

It has always been our understanding that one of the purposes of the National Board for the Promotion Of Civilian Rifle Practice to aid civilian organized shooting groups, was to make ranges at any military installation available for use by civilians, at times not required for military use, and under reasonable and sound safety rules for particular ranges. This has, in our understanding, applied to both regular service military installations and to ranges in National Guard armories constructed with public funds, in whole or in substantial part. This provision has, to the best of our knowledge, in general, been quite cooperatively carried out, and has been a real aid in the promotion and continued activity of organized civilian rifle practice.

In the State of Vermont, nearly one half (or perhaps more) of the organized NRA clubs have depended on ranges in National Guard armories for doing their gallery shooting. In the past the Adjutant General and the local Company commanders have been quite cooperative in making National Guard ranges available to the civilian clubs, and toward promotion of civilian shooting. Increased National Guard activity has somewhat restricted time allotments for civilian use of the armory ranges, but that has been understandable and accepted by the civilian shooters in good grace. However, within the year, a change of policy in this State of Vermont has placed a financial restriction (at least) on use of these armory ranges by some civilian clubs. How this has affected the locality with which this writer is personally familiar will illustrate the present situation.

A junior rifle club in Lyndonville has shot on the range of a new National Guard armory in the village for the preceding two winters. The use of the range was not denied to this club for the current winter, **BUT**, a rental charge of $5.00 an hour, plus janitor's pay of $1.25 an hour, was demanded, on order of the State Adjutant General's office. This was entirely beyond the means of the junior rifle club, itself, and deemed an exorbitant charge by the sponsoring Rotary Club. After this situation developed, the village trustees did grant the junior club permission to use a communtiy hall for shooting one evening a week, provided a suitable backstop be supplied by the club which could be moved out of the way when not in use. That takes care of this situation for the present and probable future, but the kids have lost a half-season of shooting and training.

A small, year old club comprised of employees of a manufacturing concern in the near-by village of St. Johnsbury had used the Lyndonville armory range last winter, one evening a week, on a no-rental basis. The present $5.00 per hour rental (for a four point range) was more than the members of this small club felt they could afford. The more active shooting members of the club solved their problem by joining an existing club in St. Johnsbury which has its own range on a rented site. Both the junior and senior clubs are NRA affiliated and the junior club is on the active roll of the Director of Civilian Marksmanship.

In the case of this junior club, community spirit and the recognition of the desirability of firearms training for the youngsters solved their problem in a sensible and desirable manner. In the case of the senior club, probably it and the club it joined with will make a stronger and more active unit which will be better than two separate clubs for all concerned. In other communities this problem may not be so easily solved, but we expect the civilians who want to shoot will find some reasonably satisfactory solution.

We do not know whether this situation exists in other states or not. If not yet, it may be another thing to watch out for in the future. For us, here in Vermont, it does get under our skins to have to pay excessively high rent to use ranges that have been built from public funds, which we are taxed to provide, and which, in far too many cases, are used very little by the National Guard companies, other than as storage space for equipment.

It also makes some of us wonder if this is a start of a trend for an ascendency of the Military who may be forgetting that they are, as yet, the servants of the public rather than the masters. It will be very well if civilians, shooters and all others, keep aware of what our public servants are doing and how the tax monies that are supplied by ALL citizens are being used to carry out governmental services. THERE ARE NO GOVERNMENT GIVE-AWAYS!

When the Military, be it National Guard or Regular Service, is not using OUR property for essential services or activities, we should expect to be able to use OUR OWN jointly owned property, with lighting and heating which we already pay for from tax monies, without further taxation, or so-called rental. PHT

LETTERS

Dear Phil:

I much appreciated the article on silver soldering because I've been wanting to learn the art. Instead of brazing, I soft solder wherever practicable because the low heat required harms neither the finish nor the temper. I first tin the surfaces, and if size permits and need of strength warrants, drill, tap and join with one or more threaded rivets. These bring the surfaces very near. together Suitable heating melts the solder and results in a joint that will hold till the Indians come back.

The strength of the tin-and-lead solder is remarkable. I have seen it fail to yield under a chain-fall stress which I esitmated was at least 1,000 pounds per sq. in. of sweated surface.

My neighborhood hardware store sells, under the old Allen trademark, an aluminum solder which is self fluxing, matches aluminum in appearance, and seems as hard and durable. It is possible with it to build up and refinish such aluminum parts as scope mounts. The working surfaces of a pair of aluminum dovetails which I doctored with it two or three years ago are still in service.

Jesse M. Grigg
Chicago, Ill.

Dear Phil:

Was very much interested in the de Haas article on silver soldering in the last Precision Shooting (November 1958). I do not believe that many gunsmiths use it to its fullest extent, even for temporary repairs. However, he does make one misstatement; that a properly made silver solder joint is stronger than the new part. No silver soldered, brazed or welded union can be stronger than the metals used to make the joint, and, since most of the joinings will be made in broken high carbon steel parts, it simply cannot be stronger. This applies just as much to the usual low carbon rod used for much welding as it does to silver solder. Further, silver soldered parts can be hardened and tempered (drawn). It has been done many times, especially on hammer inserts to replace broken halfcock notches.

Incidentally, this idea of strength of silver soldered joints is to some extent due to breakage of parts that have been repaired at some other place than the repaired spot. This is always due to faulty heating that has destroyed the strength of the original metal by crystallization.

Paul Dodge
Yreka, Calif.

Dear Phil:

I hope Mr. de Haas' article will wake up some readers to the many possibilities in silver brazing. I don't know how I could get along without it. Not a week goes by but I use it four or five times, all the way from fixing a broken hinge on a coffee pot lid to helping out a neighbor with a queer problem.

William Peterson
New Canaan, Conn.

(Editor's comment: Almost invariably these how-to-do-it articles bring some comment from other shooters that add a bit more to the general fund of information for shooters. Providing a means for shooters to exchange information and to discuss shooting and related problems, in a sane, reasonable and instructive manner, is the only sound reason that Precision SHOOTING has for existing.)

DOUBLE-ACTION FOR ACCURACY

by William E. Peterson

The term "double-action" means that method of firing a revolver in which you haul the trigger back all the way—probably as much as three-fourths of an inch—while the cylinder turns and the hammer rises to its top position and is finally released. You can't shoot accurately that way, all the books say. In fact this belief is so firmly established that hardly anyone ever experiments to test it. However, an occasional shooter here and there will jump the fence set up by authority, and find himself in very interesting country. Below are representative double-action targets by six such experimenters, two of them being NRA Sharpshooters, three Expert class shooters, while the sixth—George Phillips—has long achieved high distinction in the rarified atmosphere of the Master class. There are others spotted about the country in shooting circles, but they are rare birds.

None of these people claim that double-action is actually better than the established method of revolver manipulation. They just say it is best for them. It may be so for others, and the purpose of this article is not to depreciate the orthodox single-action principle, but to demonstrate the alternative method so that those who are discouraged by slow progress in revolver shooting may be impelled to invest a box or two of ammo on the chance that the result may indicate a promising new way around their difficulties, justifying consistent practice.

This article is limited to the accuracy possibilities of double-action in match competition. Really fast shooting is something else again, as double-action can perform far faster than the five shots in ten seconds which is called "rapid fire" in the National Match course.

The reaction among orthodox shooters seeing a contestant working his revolver without thumb-cocking, is very curious. An astonished group will form behind the shooter, making such comments as "Don't know how he does it!" "You can't shoot that way!" "He must know just when it's going off." Well, you're darn right he knows when it's going off, at least more nearly than the orthodox shooter who has nothing more to tell him than finger pressure on an unmoving trigger. In double-action the trigger is pulled back from start to finish as much as three-fourths of an inch, and the imminence of firing is conveyed by the trigger position, acting like the indicator of a pressure gauge.

Another usual comment is "It must take years of practice." But what about the months and years of practice learning to thumb a hammer in rapid fire? Actually double-action does not take as long to learn, as I discovered when some time ago I found it necessary, in order to contniue pistol shooting, to shift the gun to the untrained left hand. Attempts to cock and fire the gun five times in ten seconds, left-handed, were nothing but fumbling failures. First attempts at double-action, however, were found quite encouraging, and succeeding months of more or less casual practice have put this shooter back again in the game of competitive shooting, with improvement still continuing.

The double-action hold of the hand on the butt differs considerably from the standard single-action hold. Note how, in the photo, the forefinger wraps well around the trigger. This moves the bulk of the hand around to the right of the butt, the fleshy part at the base of the thumb taking most of the recoil, with some aid by the heel of the hand—all very wrong, of course, if you go by the book. However, this enables the trigger pressure to be applied by the second joint of the finger, affording a much greater leverage to move the trigger against the heavy tension of the mainspring, and also enabling the tip of the forefinger to slide along the frame and control the final easing off of the shot. The grip is entirely natural, the thumb being used to help grip the gun, instead of being stuck up in the air in position for thumb-cocking. That grip stays put right through the string, with no change. All that moves is the trigger-finger. Of course the hold described is all wrong by orthodox standards. The only thing that can be said for it is that it works—for some shooters at least, and works quite well.

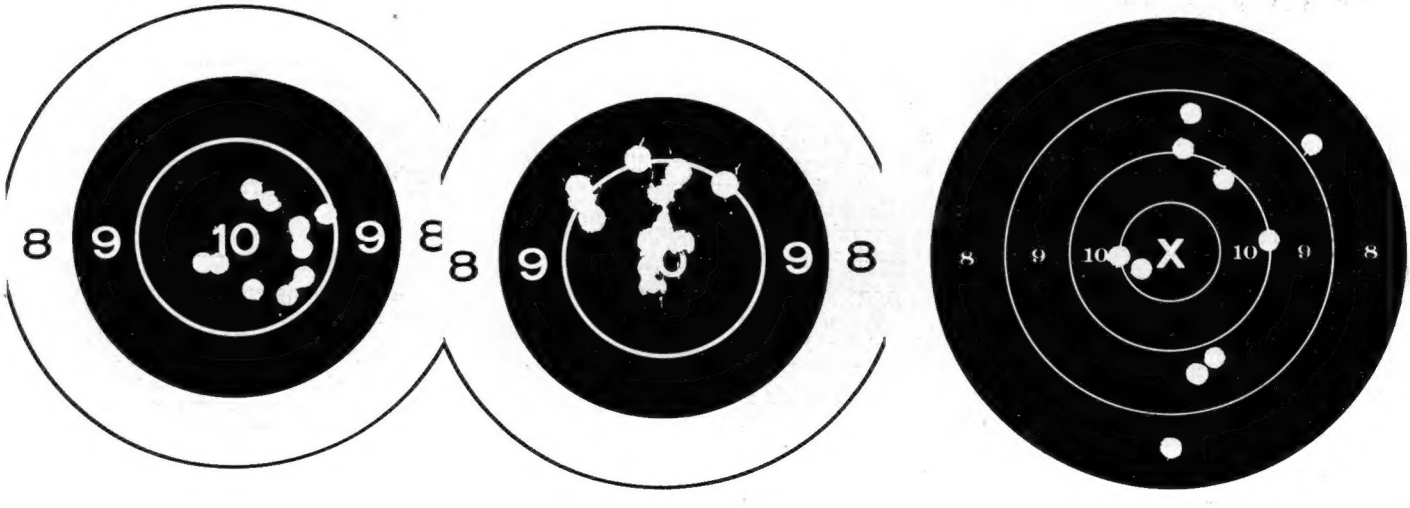
For the short-fingered hand it is possible to get a custom-made grip with a projection on the left side upon which the tip of the finger stops before the hammer falls, thus easing off the shot. Grips of this type are made by the veteran gunsmith Joseph Rivers of Rowayton, Connecticut, himself an accomplished performer in double-action shooting.

While speed of accurate firing is greatly aided for the trained double-action shooter, that is not all of the story. Slow fire can be helped, too. Some addicts use double-action all the way through a match, including slow fire at fifty yards. This may be because of certain unique advantages in the double-action let-off, not present in single action. One is the long backward drag of the trigger previously referred to. Another is the unchanging grip. Further, the double-action pull from start to finish has almost no variation in weight. You start the backward drag at eight to ten pounds, depending on the gun, and continue on back with no measurable increase until the hammer falls. Thus the muscles of the hand adapt themselves to holding the gun against the initially heavy trigger pull, and **do not have to readapt themselves nor change,** right up to the instant of firing. Compare this with the single action pull, starting at zero and building up to three pounds or more, the hand muscles constantly changing to meet the gradual increase. These are merely theories, but there must be some explanation of the results that most double-action shooters get.

The Smith & Wesson revolver seems to be preferred for double-action, largely because in that gun the cylinder has turned and been latched in alignment while the hammer is still rising, so that the critical part of the pull, just before the hammer fall, is smoothly free of possible minute checks or disturbances due to complicated mechanical action. However Colts and other revolvers with double-action design function well. No major changes are necessary for accurate double-action shooting, although anything that will reduce the heavy pull is advantageous. In the S & W the hammer spring can be lightened slightly by backing off the strain screw low down in the front of the butt. This again is against all authority, and too much of it will cause misfires, inevitably occurring in the rapid fire stage of that match you

Two rapid fire targets (five shots in ten seconds) by Pistol Master George Phillips, one of the country's outstanding handgunners, and New York State Champion for five straight years. These targets, one made with the .38 and the other with .45, were shot under match pressure and helped in each case to win the match for Phillips, adding to his collection of almost a thousand trophies and medals. Phillips shoots double-action in all center-fire matches, usnig an S & W Outdoorsman for .38, and an S & W Model 50 in .45 matches.

Double-action at fifty yards. Slow fire target by the author, who shoots in the Expert class, and prefers to use double-action all the way. The full ten minutes or nearly so, was used in making this target. This group was not specially selected, but is fairly typical for this shooter, who would certainly not have done any better if shooting single-action.



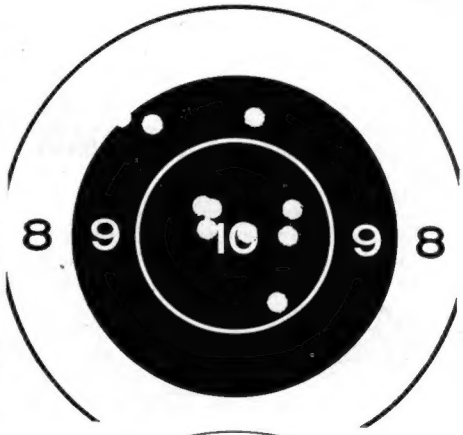
have been waiting for. Watch your step—establish the spring tension that will surely fire, then add another half turn as a factor of safety. According to the books, anything short of full spring tension can cause slow or faulty ignition. I can only say that this has not been my experience.

Check on your firing pin. One which has worn loose in the nose of the hammer can deliver a cushioned blow. Up and down movement is normal, but if it has any back and forward movement have it replaced. Polish with crocus paper all sliding surfaces, such as that little square block just above the trigger in the S & W. Inside the block is the "rebound" spring, which shoves the trigger forward after firing. This spring adds its weight to the pull, and you can safely cut off a coil or two without destroying its function. If you go too far a replacement is not expensive. I know one man who removed the rebound spring entirely, soldered a ring on the front of the trigger, and after each shot pushed the trigger back manually with his trigger finger. It worked all right, too.

The type of primer you use is important, as some are softer, and fire dependably with a lighter blow than others. These of course are the ones to use for double-action. I have found Cascade, RWS, and Remington 1½ best in the small pistol size. In the larger primer, Cascade, RWS, and Winchester III. Seat the primers all the way in for a good solid hammer blow.

All this double-action stuff amounts to is a different way of getting the shot off, and some added help when you are shooting against a stop-watch. Double-action will not do the holding for you—you still have to do that. Probably one hundred shots will tell if this hopelessly unorthodox method of shooting for accuracy has any possibilities for you. Fire the first ten or twenty in slow fire, remembering to let the tip of your trigger finger curl around the trigger and touch the frame as the trigger comes back, to give you control. After awhile speed it up a bit, ultimately as fast as five shots in twenty seconds, trying to hold them in the black. You may be agreeably surprised.

The double-action grip at the beginning of the pull (shown in phantom) and at the finish, just before the moment of firing. Note that the tip of the finger has slid backward along the frame, maintaining light pressure against it, same as you would slide your hand along a banister rail in descending a steep stair, and giving you the same confidence and assurance of control. With this finger-tip pressure you can stop the backward movement of the trigger at will, and hold it until the sights look right. However a steady non-stop rearward movement is best. On this gun, the author's .45 S & W Model 55, the hammer spur is sawed off since it is unused. This lightens the hammer and makes it easier for the spring to overcome the initial inertia, thus at least achieving a faster blow. There are of course two opinions as to the wisdom of this measure.



Rapid fire and time fire targets by four other adherents of the double-action principle—Joseph Rivers and Guy Bonham, both Expert class, and Richard Lougee and Howard Burns, Sharpshooters. Recently Burns shot over the U. S. Army pistol qualification course with a .45 automatic, and did not even qualify. Then borrowed the writer's .45 S & W, and shooting double-action, easily made Expert.

The new Savage Model 110-MCL left-hand bolt action high-power rifle, a completely new, factory production engineered, true left-hand action.

THE 6 M/M's AND THE NEW SAVAGE MODEL 110 RIFLE

By Colonel Townsend Whelen

Everywhere the .243 and .244 rifles appear to be getting more popular. They are becoming the choice calibers for varmint shooting, particularly for crows, because they are just about as accurate as the hot-shot .22's, and they buck the wind better. Here in the West they have become very popular for deer and antelope. For instance, at Les Bowman's ranch on the South Fork of the Shoshone River in Wyoming, from which I have just returned, the score stands at 183 clean kills for these calibers, all shots into the thorax, with 100 grain bullets, all in rifles with 10-inch twist. Thirty one of these kills were elk, three were sheep, and three were bear. The rest were deer and antelope. Just a few were with a 6m/m-30 30 with 90 grain Nosler bullet. The 100 grain Nosler bullet seems to give the best wound results on big game. The lighter bullets expand too quickly on large game; do not penetrate deeply enough, and do not smash bones like the 100 grain.

Incidentally, number 182 on the above list was mine, a nice, fat mule deer buck I shot one day at the request of Les who was badly in need of meat. At 100 yards (about) the 100 grain Sierra from my .243 rifle went exactly where I held it, through both shoulders, and we found 45 grains of core and jacket just under the skin on the opposite shoulder. I am glad to say the buck never knew what hit him. This kill may be a sort of a record; my first deer shot in 1892, and my last in 1958—68 years of deer hunting.

I have been doing quite a bit of shooting with the new Savage Model 110-MC bolt action rifles in .243 caliber, and am impressed with their handiness and general suitability. The Savage modification of the Mauser action seems excellent with its extra baffle lugs at the head of the bolt acting as an additional safety factor to its almost fully inclosed case head, its easily adjustable trigger pull, and its convenient safety. The accuracy seems splendid for such a light arm. Almost every shot with Savage factory ammunition was in a 2½ inch circle at 100 yards, and almost all five shot groups were in an inch and a half, while with my pet hand loads, groups were much smaller. Of course this was with a scope. You can't expect any worth while shooting from an open rear sight. The 4X Bear Cub scope with Redfield Junior mount that I used on these rifles is just a "natural" for the rifle, easily screwed in place by anyone.

Savage has just announced this Model 110-MC in .243 Win. and .308 Win. cailbers with a left hand action:—that is a complete left hand mechanism, everything reversed—not just a bolt handle on the left side—ejecting the cases to the left. It has the same fine Monte Carlo stock as the standard right hand action, is in .243 and .308 calibers only, and will be known as the Model 110-MCL. It should be all the answers to those left hand shooters who prefer the bolt action, but have difficulty in operating a right hand bolt in rapid fire. I have one of these left hand models in .243 caliber, have fitted it with a scope, and it seems every bit as accurate as the standard right hand model.

These very light .243 caliber rifles are so handy and attractive to shoot, and the recoil is so moderate, that I imagine the average owner will be inclined to shoot them more, become thoroughly used to them, and learn their zeros better, which will be all to the good when he comes to use them afield on game. But I am a little leary about these same rifles in .308 caliber for the average sportsman, not due to accuracy, but rather to recoil. The recoil in the .308 Win. cartridge is not appreciably different from the .30-06 with the same weight bullet. Of course it is nothing to the seasoned rifleman, but I am afraid that the average sportsman might find it rather severe, and tending towards forming the flinching habit. He certainly won't find it as pleasant to shoot as a .243, and probably will not become as familiar with it. I have seen so much of the troubles that ordinary sportsmen, who shoot a center fire rifle only two or three times a year, have with even moderately recoiling rifles. Les Bowman tells me that the principal trouble he has with his sportsman hunters is their flinching with the heavy recoiling rifles that they seem to think necessary to kill big game.

The Savage Arms Company have also just announced that they will furnish all their Model 110 bolt action rifles in barrelled actions, without stock, and with no sights on the barrel when requested. Thus custom gunmakers can stock these themselves, and to their own dimensions when desired, instead of having to purchase a complete rifle and discard the factory stock. However, it does seem to me that the standard factory "Monte Carlo" stock they now furnish on all these rifles is very suitable indeed for most men who use scope sights.

(Editor's note: We understand that Remington will now supply their Model 721 and 722 rifles in barrelled actions only, which is a welcome change from their former policy.)

A CASE SIZING LUBRICANT

By Allan S. Noyes

Some time ago I came upon a lubricant for case sizing which is styled "Reloaders Brass Drawing Compound Concentrate" and which, to my way of thinking, is by far the best lubricant for the purpose which I have used. The main advantage of it is that it is kept at the proper viscosity by adding **water** as necessary and it is amazing how little of it is required to get fine results. A sample may be obtained for 25¢ from Reloaders & Gunsmith Service Co., Box 214, Murray, Utah. I do not know how it will act on lead wire in making bullet cores but it is wonderful in resizing brass. I find it most handy for reforming operations such as making 8mm cases from government brass—takes all the work out of it and does not pucker or dent cases as happens when too much oil is used.

Some of the manuals on hand loading do not seem to favor full length resizing in cases where it is possible to make 'shootable" ammunition by neck sizing only, but I never could quite agree with this premise. I do agree, however, that the "working" that the brass gets in the resizing process in some dies does a lot of harm and shortens case life. On the other hand, I have seen a great number of neck sized cases where the necks were no longer concentric with the case body, resulting in split necks. I picked up cheaply, on one occasion, a couple hundred of .222 Remington hand loads which were very bad in this respect. Six of the first ten I fired split in the neck. I pulled the bullets, resized the cases full length, then reloaded them and they all have been OK ever since. These cases had been neck sized in a tong tool.

Now, getting back to the "working" of the metal in full length resizing, there is no doubt but that a high surface friction between the brass of the case and the steel of the die will impose a torture on the granular structure of the brass and so shorten its useful life. The need of a lubricant is most evident but, somehow, not just any oil or grease will do the job properly and some of the highest quality lubricating oils have been the worst offenders when used as a case lubricant. I once cooked up a mess of salad oil, cocoa butter, a laundry detergent and water and it worked as well, if not better, than oils which I had bought for the purpose but it was messy to concoct, was a bother to store properly (refrigerated) and had to be warmed before use.

When I heard of this "Concentrate" I welcomed the chance to try it and have used it with the most gratifying results

for several years. A little goes a very long way, storage and availability for use are no problem and the cost is very low.

I apply it to the cartridge case with the thumb and index finger of my right hand and I find that a little dab of the stuff on my fingers will suffice for as many as six cartridges before I have to stick my finger in the box for more. I load right handed, keep all my components on table at my left and stand up at my press which operates on the down stroke. Motions proceed as follows:

1) Left hand picks up empty case and passes it to my right hand which already has the Compound on my finger pads.

2) While right hand is applying the compound by rolling the case between finger and thumb, left hand inserts primer in arm.

3) Right hand enters case in shell holder slot and left hand pushes it into position while right hand is grasping the lever, using three fingers and base of thumb to operate the lever so as not to smear the handle with compound.

4) Left hand removes resized and reprimed cartridge case to the loading block, ready to repeat the cycle.

Two things have been most noticeable to me in using this compound. First is the very small amount that is required to do the work; and from the very great ease with which the resizing is done it must be a fact that the brass is subjected to a greatly reduced amount of "working" in the process. Second is the complete absence of "oil dents" which occur with most annoying frequency with some oils, particularly in the neck and shoulder of cases.

After I have used the Compound and am ready to put the die away I do take the precaution to wipe the inside of it with an oily rag with the result that all of my dies, whether used frequently or not, stay bright and clean.

LUBRICATING JACKETS IN BULLET SWEDGING

In commenting on the article "GREENHORN BULLET MAKER," J. W. Baldwin (BALDWIN BULLETS), Westboro, Mass., writes:

There is one step in making bullets I personally think we could help each other in; namely in the lubricating of the jacket for the final swedging of the bullet. You mention working the lubricant into the fingers and rolling the core seated hull between them to get the thin coating of lubricant needed, as the universal recommended way.

While I am only a crazy little voice in the wilderness, I convinced myself that system is all wet, and **does not** give a uniform coating to the hull. Sooner or later the fingers don't have much lubricant left on them and the hulls get derned little—then you stop and work some more lubricant into the fingers and start running more hulls, with more lubricant than the last of the preceding ones, with the result of definitely varying amounts of lubrication and slighlty different finished bullets.

In the course of my years making bullets I finally settled on my present system, after trying all kinds of suggestions, and to date I have not found any other system to equal it—if I do I will change my present method.

I took a piece of scrap half inch board about four by six inches and put a thin sheet of aluminum on one face, to prevent the oil or grease—lubricant—from soaking into the board. Then I attached a piece of medium weight felt over the aluminum. The lubricant is then worked well into the felt and you are ready for business. The core filled hull is rolled once or twice over the felt with the index finger, using the same roll and pressure, light, **every time;** and you come up with a thin, even film of lubrication. More lubricant now and then on the felt, always when you are changing the swedge adjustment so the first few hulls will take any excess lubrication, as these first few will always be put into the reject box for blowouts, etc.

Simple, easier, and a sure uniform film of lubricant, and definitely less messy, with no oily cloth to throw in the corner next to the radiator to start something else.

Anyway, this is my system which works for me. It is not written to start any controversy, just perhaps to help someone.

John P. Waterson, Coldwater, Ontario, writes of his method, as follows:

For a final swedging lubricant I was using the method of putting Hoppe's No. 9 on the finger tips and working it in, then when the core seated jackets were picked up they would get some lubricant. Since then I have taken a flannel cloth and put about 4 drops of Anhydrous Lanolin on it (which I use for all case sizing), then rubbing the cloth together to get the lanolin into and around the cloth. I roll a bunch of core-filled jackets around on the cloth with the palm of my hand and swedge them from there, and I have found it easier than using the finger-tip method.

MORE BEDDING MATERIAL EXPERIMENTS

by Mason Williams

In connection with my plastic bedding, I took the same barreled action that I had used in my previous tests, since I knew that it was a known factor. I then carefully checked the receiver bedding and finding it acceptable in an old "as issue" stock, completely filled the barrel channel with Dicks-Armstrong-Pontius DAP "33" Glazing Compound. I choose this material because several people in the business told me it was permanently elastic, constant and should retain its shape in the barrel channel. At first I had planned to use caulking compound, but after talking to people, I came to the conclusion that it might not be as consistently stable as the Glazing Compound. I personally don't know enough about these materials and can make no further comments.

After filling the barrel channel with the DAP "33" in the "as issue" stock, I pulled the barrel and receiver down into the stock and set the guard screws. The following day, after wiping off all the excess compound that had flowed out, I discovered that at room temperatures no further compound was moving. In other words, so far as I could see, the bedding was fixed and stable. The barrel was entirely "floating" in the compound and did not touch wood forward of the receiver.

My first test was at one hundred yards on a bitterly cold day with a wind blowing. I fired ten shots of TW service ammunition and five shots of the 48 grains #4895 powder and the 180 grain Remington Match bullet. The ten shots were inside two inches. The five shots of match ammunition ran about one and one quarter inches.

The following Saturday I fired at two hundred yards, using the same components. Point of impact with both loads was precisely the same as it was with these loads in my Plastibedded stock. I do not understand this. Tension—barrel tension—must be entirely different and yet the point of impact was the same.

Anyway, the TW groups were large, running a bit over five inches, center to center of outside shots. The match ammunition grouped between four and five inches, averaging just less than four and a half inches. I fired three ten shot groups with each load. In other words, results were not good nor were they bad. The groups definitely were not as tight as the groups fired from the Plastibedded stock.

Obviously these brief tests are not conclusive. However, from what I can find out, there is not enough of a difference to amount to enough to warrant bedding a stock with the DAP "33" compound. Frankly, I do not feel this compound is heavy enough to correctly dampen the barrel vibrations on such a large caliber in such a light barrel. I sometimes wonder if a very soft metal like pure lead might not provide the ideal barrel bedding compound. It would appear that lead might really dampen the vibrations yet without the hard resonance of wood or plastic.

COMMENT ON "COKE-BOTTLE" BULLETS

by Mason Williams

In the November issue of Precision Shooting there is a very fine article by Fred Hallberg. In it he comments on the Herter's coke bottle bullets. I have never seen these bullets, but they appear to be similar in design to the big caliber .429 Harvey bullets that I tested some time ago and which I still make and shoot. Because of this, I would like to make some comments and perhaps try to answer some of Fred Hallberg's questions.

At first glance, the 250 to 350 grain Harvey caliber .429 rifle bullets appear to have an excessive amount of bearing surface. However, if these bullets are rolled on a flat surface, it becomes apparent that there is relatively little bearing surface. Nose design brings the front edge of the bearing surface well back. In addition, a heavy cannelure is used. This cannelure serves two purposes. One, it helps lock the jacket onto the lead core. Two, it gives a substantial groove into which the case may be crimped. In addition, it has a tendency to control expansion, depending on the alloy used in the lead core.

The result is a heavy bullet with a remarkably small bearing surface, like the Herter's bullet, permitting extremely high velocities. On all recovered bullets, there was no indication that the heavy canneluring groove had changed in any way. And keep in mind, that velocities were equal to caliber .270 velocities. If push on bullet base could expand the canneluring groove, it certainly would have done so.

I have also checked recovered Jugular Jacketed bullets in caliber .357 fired at velocities close to 2,000 f.p.s. using the light weight jackets, again with a very heavy cannelure. In no instance were the canneluring grooves expanded.

Frankly, I feel that on paper, Herter's may have something in their bullet design. Time and testing will tell. Judging from Fred Hallberg's firing, there is nothing exceptional or remarkable in their accuracy. On the other hand they appear to be equal to the 150 grain M2 bullet, which is something.

SMITH & WESSON DEVELOPMENTS

By Kent Bellah

Pictured are some of the cartridges for some of the more important Smith & Wesson developments. Top row: .22 Short; .32 S & W; .32 S & W Long; .38 S & W; .38 S & W Special; 38/44 S & W Special; .357 S & W Magnum.

Bottom: .45 S & W Schofield, (also called .45 S & W Government or Army); .44 S & W American (handload), our first center fire cartridge; .44 S & W Russian; .44 S & W Special; .44 Rem. Magnum.

In 1852, founders of the firm, Horace Smith and Daniel Wesson, produced the Volcanic Repeating Pistol, using a hollow base bullet with self contained propellant. Oliver Winchester bought the patents, and the Volcanic lines are still on the M-94 Winchesters.

In 1856 Smith & Wesson brought out their Model 1 revolver for their first breech loading cartridge, the .22 Short, similar to the improved version used today. They were made under patents issued to Rollin White for bored through chambers. A .32 R. F. came out in 1861.

In 1869 they developed a much needed big bore cartridge gun, the .44 American, using our first center fire brass case. Buffalo Bill Cody demonstrated it on a buffalo hunt to Grand Duke Alexis of Russia, who immediately wanted 250,000 guns for the Russian Army. This led to an improved carrtidge, the .44 Russian, and you could paper a house with the record targets it made. Black powder started a 246 grain bullet at 750 f.p.s. and the break top guns made scores we envy today.

In 1907 Smith & Wesson improved their famous record setter to give more power with equal accuracy, using the same slug in a longer case, and the .44 S & W Special was born. With it came the swing-out New Century revolver, the finest production handarm the world had ever seen. They are still valued highly as collectors items and shooting guns.

The .38 Long Colt cartridge, now obsolete, had proved ineffective for military use, and Smith & Wesson developed the .38 S & W Special, and their 1902 Military & Police revolver. It rapidly became the most popular revolver cartridge in the world, and still is. In 1930 they souped it up, and brought out the 38/44 revolver, a heavy frame .38 Special. The hot round was intended for heavy frame guns, although it isn't apt to blow-up lighter models of recent manufacturing date. This number sparked the "velocity for power" trend, and the .357 S & W Magnum shocked the world with shocking power in 1935.

They filled a stored-up demand with those who realized the big advantage of velocity, a word almost unknown to shooters in the old days. The little cartridge was controversial because it didn't "look" potent when compared with the big bores. Many old timers stayed with their .44's and .45's, and a few still do, despite the fact the .357 Magnum has proved to have more shock and better performance than any revolver cartridge made up to that date. The .45 Long Colt had been the most powerful round from 1873 until 1935.

The little .357 round performed all out of proportion to its size, and it made a .44 Special seem like a sparrow plinker. The .44's have always been the least temperamental cartridges, and handloaders loaded (and sometimes overloaded) their .44 Specials to about equal the .357 ballistics. The .357 fans were having difficulty equaling the original Winchester factory ammo, as cast alloy bullets wouldn't perform with the softer factory swaged types.

Being a .44 fan was frustrating for me. The New Century guns my dad owned were beauties. My 1926 Models were pretty decent after some custom work. My 1950 S & W's didn't need any custom work, and took loads I don't recommend. True, they exploded small varmints and took deer consistently, but they were overloaded. Like thousands of handgunners, I wanted a heavy-duty .44 that would easily out-perform the .357 that had become my favorite. I also wanted a hot-shot in about .40 caliber, and still do. Along with many others, I let my wants be known to the major handgun makers.

Smith & Wesson shelved the project for a number of years. In 1955 they blew off the dust, and with splendid cooperation from Remington, the mighty S & W .44 Magnum came out the next year. It's a magnificent gun and cartridge, the ultimate in everything to date. The fine Remington cartridge uses a gascheck, that should have been on the depression born .357 Magnum. The two firms did considerable experimenting with bullet design, and I believe they were right to make the semi-wadcutter type with a slightly rounded nose, rather than with a perfectly flat, sharp edge nose. The strong solid head, uncannelured case is the best reloading number, and performs beautifully with the hot factory load.

The 240 grain slug starts at 1,450 f.p.s. with 1,150 f.p. M. E. Handgun power doubled from 1873 to 1935, and it doubled again in 1956. The greatest advance in handgun power for the handloaders was made in 1956 when Jim Harvey made some history of his own with his Jugular bullets that can be driven up to 2,000 f.p.s. from either a .357 or .44 Magnum. The small bore has a whooping half ton of energy and the big .44 Maggie puts out up to three-quarters of a ton of energy with a twisting, high density slug of pure lead.

No one can see in the future, but I believe shocking power has reached the near limit with current propellants. The next advance will nearly have to be in powders, as current bullet designs of high density pure lead can hardly be improved. But who knows?

WELCOME NEWS FROM REDFIELD

We have just received an announcement from the REDFIELD GUNSIGHT COMPANY that prices for the BEAR CUB scopes have been reduced from $3.00 to $5.00 effective immediately. New Prices are $49.50 for the 2¾X scope, $59.50 for the 4X and $79.50 for the 6X. In addition to the price reduction the following improvements are being made to the scopes: New neoprene anti-fog hermetic sealing—Nitrogen filled, for double fogproof assurance—New tougher and blacker TUF-COAT exterior. The combination of improvements AND reduced prices at the same time, in these days, is indeed unusual and very welcome news.

Additional news from REDFIELD is the announcement of a new International "Mark 8" target receiver sight with accurate **⅛ minute** click adjustments. It is stated that these new sights are now ready for shipment and the retail price is $39.25 with base and standard disc.

Sometime ago we received a sample of the new REDFIELD "Sharp-Shooter" rear sight, of the receiver type, designed for quick and positive attachment to the newer rifles with milled scope ribs. We have not had an opportunity to try the sight for shooting but did "try-it-on" one .22 rifle with milled scope rib and the sight fitted neatly and fastened snugly with the coin slotted head screw, at a convenient distance from the eye for hunting aperture sight use. There are simple, screw locked adjustments for elevation and windage and the windage slide is indexed to aid in the adjust-

ments. A higher front sight than issue standard may be necessary for use with this sight. A screw-on base is available for attaching the sight to rifles without the milled scope rib. It appears to be a sound sight value at the price of $4.45.

PHT

SOME NOTES ON .22 RIMFIRE

In December 1957 I published the following paragraph: "At 50 feet prone gallery shooting my .22 rimfire target rifle, a Win. M52B action with Eric Johnson barrel freefloating in Roy Dunlap free rifle stock, will with metallic sights deliver its first shot from a cold foul barrel at normal point of impact, with all succeeding shots at normal point of impact, all other factors being equal. But the same rifle with any target telescope sight will deliver its first shot from cold foul barrel from 1½ to 2 minutes at 1 o'clock from normal point of impact, the second shot slightly 1 o'clock from normal, with the third and following shots at normal point of impact, all other factors being equal."

Following publication of that paragraph I did hear from several fellows who had had identical experiences, all those writing having used one of the M52 actions, and most with a freefloating barrel, but the consistent wide first shots were out in different directions. Jesse Grigg, Chicago, Ill., sent the following which seems like a reasonable explanation for the behavior mentioned.

"Mostly, .22 match rifles need the miscalled "foulers and warmers." In such rifles the metal assembly needs to be beaten back to seat at the recoil shoulder; and wood and metal, having stuck together in the groove since previous firing, need breaking apart in order that the piece may bend normally and evenly during subsequent firing.

"Your rifle evidently is so closely fitted that the receiver does not creep to a contact at the recoil shoulder, and that, with metallic sights, the surfaces in the receiver groove do not break apart. With scope on, the extra weight does cause the adhering surfaces to break apart after two shots, and then, as the barrel is full floated and the scope attached to it alone, the rifle is able to group at one zero.

"The dynamic performance of a .22 match rifle may be accounted for almost entirely in terms of creep and bending. Vibration has nothing to do with it. After the recoil lug has become seated, subsequent firing causes the assembly to bend from muzzle to butt plate, muzzle end down. Excepting the place even with the recoil lug, other places on the wood and metal surfaces move unevenly relative to each other, just as do the surfaces of boards when two are laid together and bended. The amount of this displacement depends on the stiffness of the assembly, and stiffness in turn depends in part on the friction in the contacts. Both amount and **direction** depend on **where** the contacts are. A rifle with full floating barrel is less stiff than is one with a bedded forestock. The effect of friction is such that I have found a minute or so change of impact point when the forward receiver screw in my 52-C is changed from tight to near-tight, tight corresponding to the higher shot. Your rifle with scope puts the first shot high because the receiver does not bend until it has been broken free.

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"Whether or not a rifle is properly bedded, after a few shots it is likely to group well as long as its temperature remains ideally constant. When the temperature is undergoing changes, as it will when the rifle is directly exposed to sunshine, then the former contact points give way to others, and the shape itself of the metal assembly takes a different form owing to changes in the stresses that are induced by faulty bedding, and in general the group is irregular."

My own additional observations are: Those first two off shots last winter were so consistent that after a bit I could, by holding off, score tens or very close nines with those first two shots. This winter, with the same rifle and same scope and another scope of similar weight but higher power, the off shots continue at about the same distances from normal point of impact and with equal consistency, **EXCEPT**, they now go out at 11 o'clock instead of 1 o'clock. From Mr. Grigg's explanation, that would seem to indicate that the binding contact point between receiver and stock wood has changed, due possibly to some change in the wood fiber, which could occur.

Further support to Mr. Grigg's explanation is the observation, both last winter and so far this winter, that these two off shots **ONLY** occur at the beginning of a shooting session, and that thereafter during a normal evening of gallery shooting, the normal point of impact remains quite constant. Further, it has been observed this season that these off shots at the beginning of a shooting session occur in the same direction and the same distance from normal point of impact whether the barrel is fouled from a previous shooting session, or a clean and dry bore. The rifle's behaviour with metallic sights remains the same as last season, shooting the first shots of a shooting session, and continuing to shoot to its normal point of impact.

The above appears to subsantiate Mr. Grigg's reference to **"miscalled"** fouling and warming shots for .22 cal. rimfire match rifles. It also makes this writer wonder if that off normal point of impact first shot from "a clean cold barrel" with many high-power rifles may be due more from a "freezing" of contact points between action-barrel and stock assemblies than from the condition of the rifle bore.

This might be a worthwhile subject for further discussion and reports of observations of performance. PHT

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HANDBOOKS

Lyman's new $2. Handbook of Cast Bullets is a fitting companion to their familiar Reloading Handbook. Charles E. Lyman 3rd cooked it up for those who cook their bullets. It includes history, casting technique, shotshell data, with loads from everywhere, intended for novice or expert. Jim Harvey has a couple of pages on loads and technique for 12 of his modern and deadly Prot-X-bore bullets in cast designs. Ray Thompson, designer of what I consider the best cast alloy gas check pills, has a page. Ray's .38-357 number has two crimp grooves to work equally well in .38 or .357 cases. Both Harvey and Thompson have modern, accurate designs for high velocity, using a desirable hard metal base. Harvey's have the additional shock of soft, unalloyed lead, and some are shot as cast in precision moulds without sizing or lubrication. Elmer Keith has a page on the plain base alloy bullets he designed many years ago. Hundreds of other shooters list their loads and opinions.

One controversial statement is, "The gas check has done its job when the bullet is out of the barrel; if it comes off then, no harm is done." Many shooters,

(Continued on Page Nineteen)

National Bench Rest Shooters Association, Inc.

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BENCH REST RANGES

DAYTON, OHIO RANGE

It is reported that Irv Potter (I. E. Potter, 3910 Delaine Ave., Dayton, Ohio) is responsible for a new, fine, six bench 100 yard bench rest range, with covered firing point, conveniently located practically in the city limits of Dayton. Local and invitational matches have been held during 1958 and we suspect there may be even more shooting activity there in 1959. NBRSA members in the southwestern Ohio and neighboring area may probably get more information about this range and future matches there by contacting Irv Potter at the above address.

INDIANA RANGES

The St. Marys & Blue Creek Conservation Club, Inc., Pleasant Mills, Indiana, have facilities for bench rest shooting on their general purpose range and hold semi-formal matches, especially during the Fall season. It is reported that very few of the local area shooters at this range have special bench rest rifles, the majority shooting hunting rifles. The new NBRSA "Sporter" and "Light Varmint Rifles" programs should fit in nicely for this and similar clubs. It appears that this club does draw a goodly number of competitors to its matches (note photo of one of their shoots). NBRSA members in this northeastern Indiana and neighboring Ohio area may get more information about this range and the shooting there from Dent Baltzell, Decatur, Indiana. The club has other hunting rifle matches in addition to bench rest.

The Daniel Boone Gun Club at Evansville, Indiana, has facilities for bench rest shooting and, we believe, have at least local club matches there. NBRSA members in the southwestern Indiana and neighboring Illinois and Kentucky area might do well to contact Floyd K. Miller, Sec'y-Treas., 325 Ridgeway, Evansville 13, Indiana, for more information about this club's facilities and shooting programs.

ALLENTOWN, PENNSYLVANIA

The Unami Benchrest Shooters at Allentown, Pa., has been conducting a season-long bench rest shooting program for several years. Shooting is with varmint and hunting rifles with two classes, one for .22 cal. and one for larger than .22 cal. In 1958 their season championships were decided by the aggregate of at least seven of the 11 matches fired. All shooting is at 100 yards.

The 1958 .22 cal. class champion was Roland Hilbert with a 7 match aggregate of .5828". His smallest group was .510", which indicates very consistent shooting from a fine rifle. He shot a Sako heavy barrel .222 Rem. with Unertl 1¼" scope of 14X. His loads were; Sierra 50 gr. Spitzer bullets with 24 grs. Ball-C powder, and Sierra 53 gr. H. P. bullets with 19.5 grs. 4198 and 23 grs. Ball-C.

Aggregate runner-up was Harold E. Niebell with .6052" aggregate and smallest group of .377". He shot a Win. Model 70 Hornet converted to .222 Rem. with Unertl 1¼" scope of 10X and his load was Sierra 50 gr. Semi-Point bullet with 23.5 grs. Ball-C powder. Third ranking Norton Cope had a 7 match agg. of .6193" and fired the smallest group of the season, a .328". He shot a Rem. Model 722 in Rem. .222 cal. wtih Weaver K-10 scope and his loads were; 52 gr. Speer H. P. bullet with 23.5 and 24 grs. 3031 and 20 grs. 4198, and 50 gr. Sierra semi-point with 23.5 gr. Ball-C powder.

The larger than .22 cal. class champion was Dr. William F. Fox with a 7 match agg. of 1.111" with small group of .859". He shot a Win. Model 70 in .257 Roberts cal. with 8X Unertl 1¼" scope and loads of 117 gr. Sierra bullets with 43.5 grs. 4350 and 100 gr. Sierra with 46 grs. 4350. Harry C. Keim had a 6 match agg. of 1.089" and small group of .682", shooting another M-70 in .257 Roberts with Weaver K-10 scope and loads of 75 gr. Sierra with 42 grs. 4676, and 117 gr. Sierra with 45 grs. 4831. Dennis J. Moyer shot smallest larger than .22 cal. group of the season, a .384". He shot that on the same day Cope shot the small group with .22 cal. Moyer shot another M-70 in .257 Roberts cal.

Bruce R. Romig, 726 Chew St., Allentown, Pa., is range officer and a contact person for this group of shooters.

WHAT OTHER RANGES?

If other clubs or groups around the country have ranges with bench rest facilities and a shooting program, where other NBRSA members might be welcome, we would be glad to hear of them and pass the word along.

PLANNING MEETINGS IMPORTANT

When the Eastern Bench Rest Shooters Association was organized in 1947 as the original association to promote and govern bench rest competitive shooting as we know it today, provision was made to hold an annual Winter Planning Meeting to plan activities for the following summer shooting, as well as to make any desirable changes in organization policy. The wisdom of this provision and the practical worth of the planning meetings was immediately evident. The meetings of leader members of the Association for the sole purpose of planning activity and promotional programs resulted in concerted action to promote growth of competitive bench rest shooting in the East and to spread information about this newly organized type of target shooting throughout the nation.

When the National Bench Rest Shooters Association was organized in 1951 the worth of the annual winter planning meetings was so well established in the East that they have been continued as Eastern Region meetings and they have been an important factor in promoting the continued growth of organized bench rest shooting in the Eastern Region. At these meetings the major match program for the following season is planned to avoid conflict in match dates. Matters of purely regional policy and activity are decided. Seemingly desirable changes of policy, shooting rules, etc., on a national scale are discussed, and following suggestions and recommendations are frequently made to the board of directors of the national association, after majority vote action by members attending these meetings.

After sub-division of the Eastern Region, in 1955, into the Atlantic Seaboard and the Great Lakes and Mississippi Valley districts, with a deputy director leading each district, a winter planning meeting for the entire Region has been continued to date. Some weaknesses of the single meeting for the entire Region are becoming evident and are now being called to the attention of all Eastern Region members by the Deputy Director for the Great Lakes and Mississippi Valley, Paul O. Gottschall.

To date the Winter Planning Meetings have been held in the state of New York, originally in Johnstown, N. Y. but in several recent years in Elmira, N. Y. The site for the meetings has been selected to make them as centrally located as possible for the **concentration** of active shooting members in the Region. The Elmira, N. Y. site for the Meetings was selected as being as conveniently central as possible for the entire Region. However, uncertain winter travel conditions for the mid-winter date of the meetings (February 14-15, 1959) makes attendance at least inconvenient for members residing in both the extreme eastern and western borders of the Region, even though they recognize the worth and importance of the meetings and would like to participate in them. It is becoming evident that this is resulting in less than a desirable representation from the entire Region at the Winter Planning Meeting. Especially evident is the sparsity of representation from the western section of the Great Lakes and Mississippi Valley District, from which very few members have ever attended one of the Eastern Region Winter Planning Meetings, and thus the free and open discussions and

democratic actions at the meetings have not been generally experienced or the importance of such meetings fully recognized.

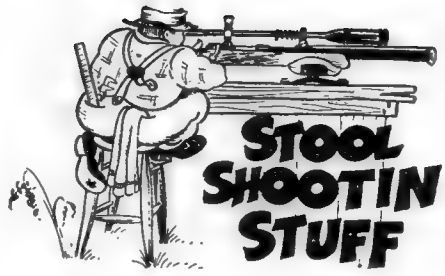
Deputy Director Gottschall is now proposing that an annual winter planning meeting be held **in each district of the Eastern Region.** Gottschall believes that such a **District Meeting** is especially important for the Great Lakes and Mississippi Valley district and could have the following advantageous results: That planned action could aid in the promotion of more bench rest shooting in the district and to growth of membership. That a shooting activity program **planned by members of that district** could better serve the district and promote greater participation in the match program. That planning of the shooting program after face-to-face consultation and decision among representatives from shoot sponsoring clubs within the district is desirable and necessary. That in such meetings the district shooting activity program might be coordinated with the programs of the neighboring North Central and Mid-Continent Regions to the benefit and convenience of competitors in all three regions.

Gottschall has the past season been promoting his proposal for district winter planning meetings and has met with general approval of the idea in his own district. In support of his proposal he states: "I have myself only attended the Planning Meetings at Elmira the last three winters. However, it is perfectly clear to me from my observation of these three meetings that more good comes from the Winter Plnaning Meeting than from any one thing that takes place in the Eastern Region organization." Gottschall recognizes that travel distance from the western part of his district to Elmira, N. Y., is a very real handicap to members in that area who might wish to attend the 1959 meeting there but, in spite of that, he very strongly urges that as many members as possible from the Great Lakes and Mississippi Valley District make every possible effort to attend the Eastern Region Winter Planning Meeting at Elmira, N. Y. (at Mark Twain Hotel) on February 14-15, 1959 (Saturday and Sunday), with the thought in mind for a district planning meeting in 1960. He especially urges that shoot sponsoring clubs in his district make a special effort to send a representative to the meeting in Elmira.

Should this proposal of Paul Gottschall's for holding a planning meeting in each of the Eastern Region districts meet with approval and be adopted, there would then be need for coordinating the work of the two meetings in the interest of the whole Eastern Region. It would seem that a very practical means for such coordinating would be to hold the meetings in both districts on the same date and arrange for consultations by telephone between the two meetings to get a "meeting of minds" during the progress of the meetings on matters affecting the entire region.

These planning meetings, entirely devoted to the business of planning policy, promotion and activity programs within a region, have so clearly demonstrated their solid worth in the East, it would seem that other Regions might well consider something of a similar nature. Without shooting to interfere, as with meetings conducted at matches, better considered work may be accomplished on organization, policy and program planning within a Region.

P. H. T.



Dear Phil:

If you think I am going to start this letter off by telling you how mild the weather is on Cape Cod as I often have done in previous years at this time, you are making a wrong guess. For the first time since I moved the Shooting Shanty across the lake on the ice approximately 5 years ago, this year the middle lake is frozen hard. Merrie and I skated on it Sunday and look forward to some more of it if we don't get a snowfall.

In spite of the ice, however, the sunshine was bright and the wind quiet enough to use the outside benches for a little testing. I really should have done the testing at 300 meters and combined my skating with the shooting as I went from bench to target because at that range, I shoot across one of the coves in the lake.

It is hard to believe that you will hardly publish this before we are headed for the winter meeting and an opportunity for Merrie and me to enjoy the folks that we are so fond of and meet too seldom, even in the summertime. The Elmira Meeting is really a pleasant one and I hope it is well attended. While I am wishing for good things, I might well ask the weather man to be a little more cooperative. Last year was a pretty tough ride but really the only one in many that presented much of a problem to us. Your notice in the last issue should make the fellows understand that everyone is invited and that those who do go are in no way delegates representing anybody but themselves, unless some friend or neighboring club has asked that individual to put a word or two in at the meeting in their behalf.

So you didn't want to publish that picture of the 5 big wild cats that Doc Garcelon got. Too bad, because I have another good picture of a good big cat Bob Stinehour shot while he was deer hunting. It is really the biggest cat that I have heard of for a long time because a 44 pound cat that was 36" from nose to tail and 19" standing certainly is a bit out of the ordinary. I think I agree with you in not publishing the usual run-of-the-mill hunting stories, but at this time of the year, I do feel that it is interesting and newsy to hear of what the benchrest shooters are doing, from place to place, and since many of the benchrest shooters are hunters, too, I think that they like to hear a few details of the experiences of their pals. I got my deer in New Hampshire with almost a benchrest shot. He was coming towards me at maybe 125 yards, through rather thick straight maple, birch, beech and oak from 3" to 8" in diameter. If I had not had the absolute confidence that my bullet would stay within the 2" of open space between those trees, I probably would never have dropped the deer in his tracks because there was no space 2" wide for more than a fleeting second or two, and that new open dot reticule that I have on my bear cub scope, furnished by Felver Optical, matched up exactly with where the bullet hit.

I found the rather thin publication of December to be packed with some very good articles and comments. As a matter of fact, I think Grigg's article on Fliers matches up very closely with some studies I have been making with some of my good shooting rifles. I didn't get quite so mathematical in my experiments but I did examine carefully several of the rifles which have shot well with three or four different barrels and at least 3 different stocks. I tried to break the problem down to find the one condition or a few conditions that were characteristic of them all. The most obvious thing that I found was that the lug surfaces on the bolts all were very smooth and the contact between them and their locking surfaces was large in area and very uniform. The bolt faces seemed smooth and true and the firing pin seems to travel smoothly to pretty near dead center on the primer. I believe this condition is important enough to encourage the fellows to examine their guns and relap if necessary the fitting of their bolt lugs. The head space of their existing cartridges might be increased slightly but not to a hazardous extent and if the case necks and shoulders are annealed, I doubt if they will lose one of their old cases.

I strongly believe that turned rims of approximately .468 in size with an ample extractor groove, so that there is no pressure on the rims when the case is in the chamber, is of considerable advantage in a 722 action for a .219 case. The rim size can be slightly larger for a Mauser action but I do not like the extractor to touch the case when it is chambered.

The boys might do well to recheck their stocks. They shouldn't move much during the year but I rarely take an action in and out of a gun without seeing some little bright spot that can be dressed down to make the mating of the action to the stock better. Clair Taylor told me once how important it was to have action screws properly fitted to the action, and I have never forgotten it.

Mr. Grigg wrote his article about the .22 long rifle cartridge but the same thing applies to the benchrest boys except that their cases have probably been fired so many times that they fit the chamber well enough so that there is no lateral movement. We have all noticed that fire sizing cases often indicates excellent accuracy that does not always follow up after they are sized. This indicates to me that side pressure on the bolt face, rim, or extractor injures accuracy and we all know that it is not helpful to smaller groups to have a few grains of burned or unburned powder floating around the bolt face or locking lugs. A bullet will plow out a lot of stuff in front of it in the barrel and still shoot pretty well but those few grains that are in back of the case, as mentioned before, surely raise heck.

Mr. Magoon's article on telescope sights matches up very closely with my feelings, also. As you know, I have mentioned two or three times in this column that the present day target mount needs a lot of improvement and I hope John Unertl reads my little letter once in a while and will give it some of his personal attention. I have talked with Lyman on two or more occasions and I hope that they, too, will do something

(Continued on Page Twelve)

TO THE ACCURACY SHOOTER

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Stool Shootin Stuff

(Continued from Page Eleven)

about it. They have a wonderful chance with their new Tru-Lok mount base, but I'm afraid the old saying that Hell is paved with good intentions is too likely to apply to them. I used to think it was a good idea to take the return springs off of the scope tubes and bring the tube back to position smoothly by hand. It takes quite a lot of training not to forget to do this uniformly each time and it is conceivable that a spring will do it better and as long as the bearing surfaces are kept lubricated, the spring will accomplish the uniformity required. Homer Culver is a pretty cagey guy and he has done more than anyone I know of to rework the mounts. He found that one of the main faults with them was that the stop clamp on the front of the scope did not make a good contact with the face of the mount. Magoon's comments about sticking scopes because of binding in the mounts can generally be corrected by a little judicious lubrication at the proper points but I have noticed that sometimes the shooters are too gen erous with their lubricant and it picks up a lot of dust and grit that forms an abrasive at just the points of bearing where the most perfect surfaces are desirable.

I liked your little point, Phil, about giving the beginner a hand and I have this to suggest and I'm sure other fellows would be as willing as I to take on a similar project. If there are 6 beginners who would like to write to me, I'll endeavor to carry on a miniature correspondence course that will help them. If I get an overflow, I'll route some of the names that I can't handle to some fellow who will assist me in seeing that the beginner gets off to a good start. As a matter of fact, I have been doing just such a thing for the last two or three years, and some of the fellows are now out-shooting me. Of course, this offer goes above and beyond the call of duty which I think is my responsibility to write to any fellow who writes to me, beginner or otherwise. It is as hard on Merrie as it is on me, as she does the typing, but we only go this way once, and the friends that we make from time to time are most essential to have the travelling worth while.

Mike's answer to Fulmer in the previous article pleased me and I am sure must have been helpful to George. I have never met George but have had some very interesting correspondence with him and I know from friends who know him and have work done by him that he wants things to be right and has the talent to see that the work is well done.

The above comment reminds me of the little ad that Ted Boughton is running in the magazine. Ted has long been doing work of his own and for shooter friends in his vicinity, and I feel confident that he wouldn't let a guy down. His wife, Arlene, is one of those real nice girls that we meet throughout the Eastern area and I'll bet she shows as much enthusiasm and interest in Ted's gunsmithing problems as she does in his shooting, and if Ted does as well in his gunsmithing as he does in his shooting, he'll have a steady and profitable business.

Good health and profitable businesses is what I would be wishing all of you fellows, along with the best of shooting if I were talking to you this holiday season instead of dictating it to Merrie to pound out on her poor old beaten up typewriter. I do not doubt but that as she smacks so energetically the keys, that she too is wishing you good shooting plus all the good things you wish for yourself in 1959.

Cordially yours

Ernest Stuhlbarbier

IS THE GUN GOOD ENOUGH?

It is this writer's **"opinion"** that there are a goodly number who participate quite regularly in bench rest matches, who rarely win a match and even more rarely place high in an aggregate ranking for the simple reason that their gun, or their gun-ammo-sight combination is not good enough to consistently shoot groups small enough to win with.

The above statement may well be controversial and in fact is tossed into the discussion ring with the expectation that it will be controversial. If it leads to some reasonable discussion and debate, we lesser lights in the bench rest fraternity may learn something of worth.

This writer is fully aware that his limited experience does not qualify him as any **authority** on bench rest shooting, or on rifles or other equipment for rest shooting. On the other hand, he does not believe that anyone has had more opportunity to observe the continuing performance records of rest shooters the country over, or more need to do that observing.

In today's bench rest competitions, in good to fair shooting conditions, it requires an **average** of under one half minute of angle to win five 10-shot match aggregates at 100 yards, and at least very close to half minute average to win 200 yard aggregates. For 5-shot group aggregates the averages required to win are somewhat smaller. On those rare days of ideal outdoor shooting conditions, averages must be even smaller in order to win aggregates. The foregoing applies especially to shoots with 40 or more competitors, which will include 10% or more of known consistent high ranking shooters. Some of the smaller shoots, with 20 or less competitors, may not be quite so rugged in the accuracy required to win, but that is by no means assured.

One would be a very wishful thinker indeed to even have hopes of winning aggregates in bench rest matches with a rifle which would **average** no better than six tenths minute of angle when fired under early evening quiet testing conditions. That statement may appear to be very discouraging to many people, but need not necessarily be so. People who really love rifle shooting would better accept the statement as a challenge, rather than a discouragement.

Let's get a little background from shoot report records over a number of years before we go further. Records of people who have shot in a number of matches each year for several years. Those people divide into groups which fall into a sort of general pattern, but some may gravitate from one section of the "pattern" to another from year to year, while others seem to stay pretty consistently in one section of the "pattern."

First, there is the relatively minor portion of the total number who shoot in bench rest matches who consistently win or rank high in aggregates, year after year. Those are the people with the highly developed competitive spirit—the urge and determination to win. This group makes sure that their guns **are** good enough to win with, as well as their ammo and all other equipment. Individually, they do have slumps, perhaps because their gun-ammo combination does fall off in accuracy. All rifles do eventually lose their finest accuracy and it may take time to correct a temporary condition or to replace with equipment that will be up to demands. In addition to keeping their equipment in top-notch accuracy condition, they practice and train in all kinds of weather conditions in order to gain experience and knowledge to cope with any match condition they may encounter. No one of this group wins all the time, but seldom are any of them very far down the aggregate ranking list for long. Their guns **ARE** good enough or they soon take steps to have one that is good enough.

There is another somewhat larger group from which individuals quite frequently win or place in matches (small groups), even making record groups, but who seldom win or place in aggregates. Shooters in this group can reasonably be assumed to have guns "good enough" or at least nearly good enough for aggregate winning accuracy. Individuals in this group may not have a quite strong enough urge to win, some may not have quite confidence enough in their shooting ability, and others frankly admit that they have not developed the ability to cope with difficult weather conditions they frequently encounter at matches. Individuals in this group may rank quite high in aggregates occasionally and are most frequently in the top half of the ranking list.

Probably the largest of the three main groups of competitors includes a goodly number of people who shoot in

several matches each year, year after year. Individuals in this group (or while they remain in this group) seldom win or place in matches (small groups) and are normally in the bottom two-thirds of ranking in the aggregates. This writer believes that in this group are many who are shooting guns that are just "not good enough" (do not deliver the accuracy necessary) to win matches, except with a lucky small group for the gun, to say nothing of winning aggregates. No doubt many of these people are quite aware that their guns are not quite "good enough" to win, since a good number of them are shooters of long experience, some of them with long experience in other types of target rifle shooting prior to turning to bench rest shooting. These people continue to shoot in matches because of their love for shooting accurate rifles (and their rifles **are** accurate by other standards) and because of the pleasure they get from the meetings with other congenial people of like interests. Others who remain in this group may not have complete confidence in their own shooting ability and continue to **hope** that their guns "are better than they can shoot them." Others in this group for a time are beginners in rest shooting who are getting information and experience that will aid them in improving both their shooting and their guns and equipment.

Some examples of changing from group to group within the general "pattern" of competitor grouping are:

The real beginner rest shooter who starts in with a so-so bench rest rifle and as he absorbs information and gains experience, improves both his shooting ability, his rifle and equipment, and advances toward the top of the aggregate ranking list.

The shooter who has remained in the lower group for considerable time and then quite suddenly advances to the higher aggregate rankings, usually as a result of finding and correcting faults of his rifle and/or ammo, or changing to a new rifle of better accuracy potential.

The top ranking shooter who slumps into the next lower group for an indefinite period, the length of the period usually depending on the time it takes to make corrections in the rifles (tune-ups or replacements) he uses, and then coming back into the top ranking list.

The shooter who has worked up to the top ranking list, has significant success there for awhile and then, quite suddenly, goes into a slump for a considerable period. This writer believes that, in some cases at least, this is a case of a gun "gone sour" and the shooter resisting acceptance of this fact for too long.

Then there is the case of the new shooter being fortunate enough to acquire a really "Hot" rifle for his first gun and has unusual success in winning right at the start of his competitive experience. When/if this person's gun starts to "go sour" (and the hottest of guns do go sour from one reason or another) he goes into a slump. From lack of experience he may require considerable time to make corrections and get back into the top ranking list, or he may get discouraged and give up competitive rest shooting.

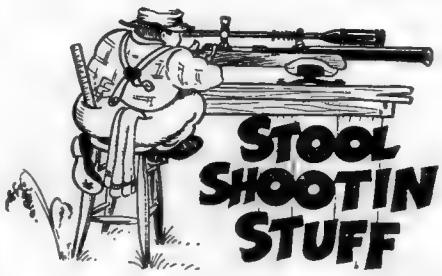
Under really good match shooting weather conditions it will be experienced shooters, confident in their shooting ablity, who have **the most accurate rifles** that will be the chief contenders for the aggregate prizes.

In difficult wind conditions for match shooting, an experienced shooter with exceptional ability for judging wind conditions (wind doping) and making the right corrections for it, may, with somewhat less than the most accurate rifle on the line, win an aggregate over shooters with lesser wind doping ability who are shooting somewhat more accurate rifles. But the ablest wind doper, shooting a rifle of mediocre accuracy, would not have a good betting chance of winning an aggregate against experienced shooters using rifles of real match winning accuracy.

At this point let the writer state that he does not believe that anyone can learn very much about wind doping by practicing with a rifle-ammo combination of mediocre accuracy. Unless the shooter **knows** that the rifle-ammo combination will reliably place every well-gotten-off shot very close to point aimed for, when shooting under favorable wind-free conditions, he cannot possibly know how much any shot is affected by prevailing wind when practicing under windy conditions, since the placement of the shot on the target away from point of aim (or hold off) may be either exaggerated or minimized by the inherent inaccuracy of the rifle-ammo combination. In other types of target rifle shooting, an accurate rifle plus consistent good holding and let-off are essential for really learning something about wind doping.

It is this writer's firm conviction that no gadgets or gimmicks can add the least bit to the inherent accuracy of a rifle-ammo combination being used with them. Some of them may, for some peo-

(Continued on Page Fourteen)



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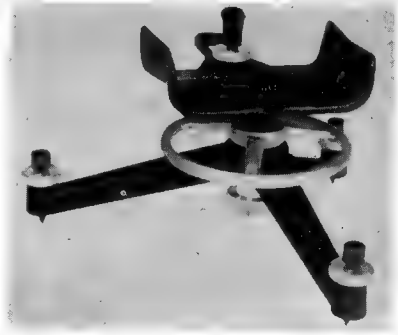

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A match in progress on the St. Marys & Blue Creek Conservation Club range at Pleasant Mills, Indiana.

Is The Gun Good Enough?
(Continued from Page Thirteen)

ple, aid in the management of the rifle in shooting and thus somewhat improve the accuracy **obtained** from a given rifle-ammo combination, but not improving one bit the pure accuracy inherent in that particular rifle-ammo combination.

In conclusion, while this writer is quite convinced that without a rifle-ammo combination that will consistently **average** half minute of angle accuracy or less one may not hope to win many matches or any aggregates in bench rest competition, which he does not presently have, he is not going to quit bench rest shooting or stop attending bench rest matches.

Tinkering and experimenting with weapon and loads to try to get a wee bit better accuracy from the rifles one has is a fascinating part of the shooting hobby. Getting replacements or new weapons and equipment, when finances permit, may prove a boon or a headache, but never dull. There is always the hope and expectation of eventually getting or creating that really HOT rifle-ammo combination that will then put all the responsibility for winning upon the shooter himself.

Win, lose or draw, the fun of shooting, the association with the congenial people of similar interests, the friends made, the information and ideas gained from others are, to this writer, sufficient compensation for the relatively modest cost for these pleasurable days of recreation at the matches, be they bench rest or other types of shooting matches. So, even if the gun isn't "good enough," he is going to continue to have shooting fun and to continue to keep trying to come up with a gun that IS good enough.

PHT

COMING: A "use" report on a new heavy duty press especially designed for jacketed bullet making. The press looks good.

LINING UP are several articles on a variety of phases of shooting and gunsmithing. Each of these will no doubt be helpful to some of you.

THE INFORMATION BENCH

The Information Bench service is available to all Precision SHOOTING readers. With your questions, send a large, stamped, self addressed return envelope for a reply. Selected questions and answers, covering as wide a variety of interests as possible, will be published in these columns. Address your questions to the following people.

Bench rest, varmint and hunting rifles, accessories, handloading, components and shooting methods—M. H. Walker, THE INFORMATION BENCH, RFD #1, Box 118, Mohawk, N. Y.

NRA and Free target rifles and shooting—Roy F. Dunlap, 2319 Ft. Lowell Rd., Tucson, Arizona.

Sporting handguns and loading—Kent Bellah, Saint Jo, Texas.

British arms and shooting—John C. J. Knott, 2226 North Euclid Ave., Tucson, Arizona.

Question: When sighting-in big game rifles in different calibers up to the 30-06, undoubtedly you have found that the first shot from a cold barrel, with the bore clean and dry, will frequently go high or wild, whereas the next two or three shots will group OK—with factory ammo.

Can you advise the reason for these "first" shots going high or wild and what changes, if any, can be made to the rifle so that the first three or four shots should be in the same group, which, as you know, is most desirable in a hunting rifle. Glenn W. Scott, Waco, Texas

Answer: I have not noticed the difficulty you describe in hunting rifles so much as in varmint rifles and bench rest rifles.

A major portion of the time the first shot out of the group is caused by a deficiency in the bedding. Actions with a simple contour where they join the stock (such as the M/721 and 722), when properly fitted to the stock with a free floating barrel, do not produce this wild first shot as often as the more complicated action shapes.

I realize this is a plug for Remington but I can not resist the temptation when the facts are obvious. M. H. Walker

Question: I have a fine heavy barreled Varminter which weighs 12½ lbs. complete with 10X Unertl scope. The only drawback is that it is too heavy to carry into some of the remote ground hog areas we have here in Central Washington. So I am going to build a lighter weight varmint gun in .244 caliber, using a good 98 action with a 24 inch 10 to 1 twist Douglas Premium barrel, topped off with a 10X Lyman scope, trying to come out with an 8 to 9 lbs. gun, complete.

My question is; what is the lightest barrel dimensions you would recommend for the above noted cartridge and still retain the accuracy needed for long range pig hunting? Also would like your recommendations for the 22-250 Varminter. Dale Adams, Wenatchee, Wash.

Answer: Within reasonable limits the accuracy of your 8-9 lb. rifle will depend more upon the quality of the workmanship and the components that you use than on the weight of the barrel.

With 75 grain bullets in a 12" twist with the standard Remington .244 it is possible, with a good rifle and handloads, to produce ¾ minute 5 shot averages up to 300 yards. This barrel is approximately 5/8ths at the muzzle. It has a slow taper to 7/8ths" at about 4" from the breech where it has a faster taper to about 1 3/16". This rifle weighs approximately 8¼ lbs.

Not all rifles will do this, naturally, and a few will do better. The 22-250 would produce slightly better accuracy under the same circumstances mainly due to the fact that better .22 caliber bullets are available. I have not been able to produce results so good as this with any 100 grain bullets in the 10" twist. The 90 grain bullet is almost as good as the 75 in the 12" twist but not quite. The 85 grain Sierra is probably best in the 12" twist. The better results have been with bullets made in B&A dies. M. H. Walker

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BITS ABOUT BULLETS
by Phil Teachout

In shooting periodicals we see many terms frequently used which are clearly understood by shooters of long experience but which, without some explanation, may not be entirely clear to some less experienced and beginner shooters. Bullet terminology is one such item and, since we do not recall seeing much detail published on this subject recently, perhaps a bit about bullets would be in order.

Let it be clearly understood at the start that this writer is **not** any "Expert" on the subject of bullets. He has no technical training in ballistics, metallurgy or even mechanics. He is strictly a "layman"—a run-of-mill shooting person who has a lively curiosity about anything pertaining to guns and shooting, has done much reading and has had the opportunity to listen to quite a large number of shooting people with wide and varied experience, has considerable experience himself and, he likes to think, a smattering of commonsense. He will try to pass on a bit of information in the simple language he has to use, and even think in. If some of this should be "mis-information" we hope and expect that better informed people will correct us.

Competitive bench rest shooting has been considerably responsible for the present day general awareness that the bullet is the ammunition component that is a most important factor in the obtainable accuracy from rifled arms. The caliber used for competitive bench rest shooting is preponderantly .22 and the cartridges are, with very few exceptions, either the .222 Remington or the .219 Donaldson or "Wasp." When equipment is listed in the reports of bench rest matches for winners of matches (groups) or aggregates, the bullets will almost invariably be listed as "home made" or "own" (frequently indicated as having been made in B&A dies), or as "Brown" (W. M. Brown), "Holmes" (Ted Holmes Gun Shop), "Baldwin" (Baldwin Bul-

lets) or other suppliers of hand-made custom bullets. Perhaps a bit of "background" will aid some to understand why this is so.

In the beginning of present day organized bench rest competitions the rifles were essentially heavy weight arms chambered for small caliber (generally .22) center fire cartridges shooting light bullets at high velocity, with flat trajectory, fast, sure expansion on impact, and superb accuracy, which had been developed for comparatively long range shooting of small varmints and pests. Before that beginning of organized bench rest shooting and for some years thereafter, the so-called "wild-catting" of these small caliber, high-velocity cartridges was in its heyday and the variety of cartridges used in bench rest match shooting was legion.

Even before the beginning of bench rest competitions, a good portion of the best available .22 caliber jacketed bullets were supplied by relatively small producers of essentially custom made bullets, though even then some shooters were making their own jacketed bullets in dies they had made themselves or had made for them. The .22 bullets made by the large ammunition companies were not available in much variety. The bullets from the small custom makers were generally considered superior in accuracy to the factory bullets, when the latter were available.

By 1949 a majority of winners in bench rest matches were shooting Sierra soft nose bullets in both Spitzer and semi-Spitzer point types, the balance of the winners being about equally divided between those shooting home-made bullets made with R. C. B. S. dies and those using bullets made by R. B. Sisk of Iowa Park, Texas. This continued through 1952, with about 75% of the winning shooters using Sierra bullets. Winners shooting bullets made by J. W. Hornady began to be reported in 1952. In 1953, winners using Hornady bullets increased but in the beginning of the year those shooting Sierra bullets continued in the majority. At the big Memorial Day bench rest matches in DuBois, Pa. in 1953, several winners reported shooting home-made bullets made in B&A (Biehler and Astles) dies. Winners using bullets made in B&A dies increased throughout the 1953 season and at the annual Labor Day Matches in Johnstown, N. Y. that year a majority of the winners were shooting these B&A bullets. In 1954 the winners shooting the home-made bullets from B&A dies gained in numbers steadily and in the first shoulder-to-shoulder national championship bench rest matches in Custer, South Dakota, 19 of the top twenty in the championship aggregate shot home-made bullets, the majority made in the B&A dies, and that situation has contniued to date.

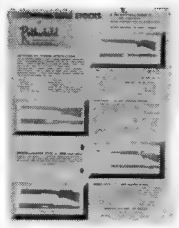
Ray Biehler and Walter Astles of Rochester, N. Y. designed and started making a Uniform Weight Core Forming die prior to or about 1950 which at first was quite generally used with the R. C. B. S. bullet swaging dies. With this core forming die, lead wire slugs slightly heavier than the desired core were swaged to shape to fit the inside of bullet jackets to be used, and the excess lead of the slug was extruded through bleed-holes in the die, resulting in formed cores of very uniform weight. Following this they designed an improved core seating die which seated the core to completely and uniformly fill out the body of the bullet in the jacket. After much experimenting they then designed a one piece bullet swaging die with improved features and late in 1952 they supplied a few shooters with matched sets of uniform weight core forming die, core seating die and bullet swaging die to make bullets by what they termed the "E. U." (expanding up) system.

The E. U. system of bullet making is based on the properties of the two metals used. Pure lead is an inert metal. The metal alloy from which the bullet jackets are made has the property of "springing back" after it has been forced into a new shape, as in the bullet swaging. In the E. U. system of bullet making, each swaging operation makes the bullet somewhat larger, thus expanding both the lead core and the bullet jacket. On release from the swaging dies the inert lead core does not contract in size, but the bullet jacket does attempt to contract, resulting in a uniform, tight bond between the bullet jacket and the lead core. The .22 cal. Sierra bullet jackets I have on hand have an outside diameter of .222 inch. Originally it was recommended that the core seated jackets be expanded to .2237" to .2239" in the core seating operation and then expanded to .224" in the bullet swaging (forming) die—this for the normal .224" bullet. It is now thought best to expand in the core seating operation to from .0001" under finished bullet diameter to full bullet diameter—thereby disturbing as little as possible the bond between core and jacket in the body of the bullet during the final operation of swaging the bullet to finished shape.

Making these matched sets of dies requires infinite care and a great deal of painstaking hand work to assure the microscopic dimension tolerances and the mirror like interior surfaces of the dies to permit the ready ejection after swaging by the push-pins provided for that purpose. These die sets are not cheap. They are precision made to turn out a precision product. Both Walt Astles and Ray Biehler are employed full time in their regular professions and make the B&A die sets in what otherwise might be "spare time." Since the success of bullets made in their dies was demonstrated in competition they have never been able to keep up with the demand for them and at present there is a long, long wait between ordering a set of B&A dies and getting them to use.

Quite recently the Bahler Die Shop, at Coos Bay, Oregon, has begun to make and market matched sets of dies for making rifle bullets by the E. U. system. Reports received indicate that bullets of fine accuracy are being made in these dies and they are already beginning to show up in the reports of equipment of match winners. Adrian Bahler is a target shooter and knows what shooters demand in quality, and he has a reputation as a skillful and conscientious workman.

(Continued on Page Sixteen)



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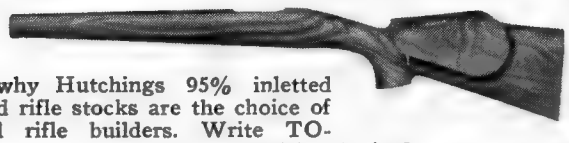

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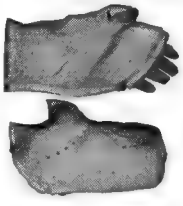

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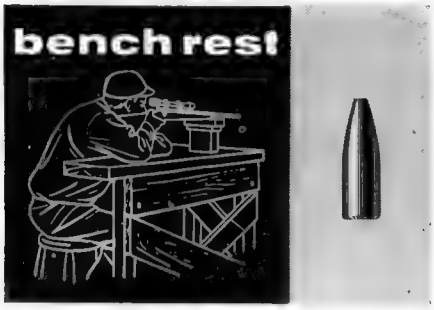

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The new "Ramp Front-Sight Installer" being made by the Williams Gun Sight Co., 7300 Lapeer Rd., Davison, Michigan, would appear to be a practical and useful tool in the shop of any gunsmith or dealer doing any considerable volume of sales and installing sights on modern rifles. It would seem that this modest cost item ($7.50) might rather quickly pay for itself in time saved in sight installation, in addition to avoiding the marring or loosening the sight ramps which is a risk of the old-fashioned drive-in and drive-out method of changing sights in ramps. PHT

Bits About Bullets

(Continued from Page Fifteen)

But a set of dies to make bullets by the E. U. system, some lead wire and some bullet jackets is not all that is necessary to make bullets of superior accuracy. The better home bullet makers pay as careful attention to the details and uniformity of their bullet making operations as they do to their shooting technique; and they are as careful in the selection of the components for their bullets as they are for other components of their loaded ammunition, and perhaps even more so for they recognize the necessity for as perfect bullets as they can make. Manufacturers of bullet jackets have to accept certain tolerances in the finished jackets. The tolerances of manufacture are kept small but it does mean that every jacket in a lot probably **will not be** exactly like every other jacket in that lot. Tolerances that may be passed as acceptable by the manufacturer may not be acceptable to the perfectionist bullet maker, who may sort them into sub-lots of lesser tolerance before using. In drawing bullet jackets it is quite possible that some will not have a perfectly uniform wall thickness for the full circumference of the jacket wall. The better bullet makers will inspect a lot of jackets for this non-uniformity, rejecting for making match bullets those individual jackets that do not meet his exacting standards, or in some cases, entire lots of jackets. When a difference in group size of .001 inch may win or lose a match, perfection is the goal of the home bullet maker.

These so-called soft-swaged bullets made by the E. U. system are of the hollow-point type and the point section of the bullet is simply a cavity enclosed by the bullet jacket, the depth of the cavity varying from ⅛ to nearly ¼ inch, depending on the weight of the bullet and length of the jacket. Bullets of .22 cal. I have recently made in .705″ Sierra jackets and weighing approximately 54 grs. have an overall formed length of .715″ and a cavity depth of approximately 3/16″.

These E. U. soft-swaged bullets are made in calibers up to .30. In 6mm cal. this type of bullet is now winning some bench rest matches. Dom Smith from Calif., shooting a 6mm in Wasp case and home-made bullets in B&A dies, placed in the "Top Twenty" of the 1958 national championship aggregate. Excellent short range accuracy has been reported from this type of bullet from .25 through .30 caliber, but we have never had any reports of the .30 caliber bullets being used in matches of our organized high-power program, or at ranges of 600 yards or over. I have some 150 grain .30 cal. bullets made by Crawford Hollidge which he reports have given very excellent accuracy at 100 and 200 yards when fired from rifles of fine target accuracy. The overall length of these 150 gr. bullets is 1.075″ and the nose cavity depth is approximately 5/16″. The over-all length of a Sierra 150 gr. Spitzer soft point bullet is also 1.075″, but the bore bearing diam. length of the hand-made bullet is at least ⅓ longer than the commercial soft point bullet. This indicates a bullet form dimension for the 150 gr. home-made bullet which probably approaches that of the normal 180 gr. soft point bullet. This appears to be a present day trend in home-made soft-swaged bullets—i. e.; corresponding bullet weights in longer jackets with deep point cavity, giving longer barrel bearing length and diminishing the possibility of heavy bullet points being even slightly eccentric with the center of bullet form.

Do not start concluding that this writer considers that commercial quantity produced bullets are no good. Such is not the case. The manufacturing firms that are exclusively devoted to bul-

let making have been "right on the ball" in maintaining the high quality of their older conventional types of bullets and continually experimenting to develop and produce improved types of bullets, with some marked successes.

During the past shooting season I have shot over-the-counter purchased .22 cal. 55 gr. soft point bullets made by both Sierra and Speer in both a bench weight rifle chambered for the standard .220 Swift case and a varmint weight rifle chambered for the .222 Rem. case, using target scopes of 20X and 24X. Shooting under reasonably good testing conditions, both bullets in both rifles gave average accuracy well under minute-of-angle to 200 yards. I shot the Speer bullets in the Swift at one bench rest match at 200 yards, under not ideal shooting conditions, and averaged a scant .900 minute-of-angle for five 5-shot groups. With my shooting and my loading, this Swift is no better than a half-minute-of-angle gun under best conditions. Sample lots of the new Hornady SX bullets in both 50 and 55 gr. weights (bullets designed for best expansion in small animal tissue at .222 Rem. velocities), fired in the same two rifles, under reasonably good testing conditions, gave accuracy closely approaching that obtained from most match bullets I have used.

Speer Products, Inc. of Lewiston, Idaho, didn't have bullets in the winning columns in the early days of bench rest competition, but about 1955 or 56 Ray Speer got interested in bench rest shooting and started experimenting to produce a .22 cal. bullet of bench rest accuracy, ending up with the Speer 52 gr. Bench Rest bullet, with which some shooters (including Ray himself) have been winning some bench rest matches. At a match in Seattle in 1957, Ray conducted an experiment of having all competitors fire a 5-shot match with his 52 gr. match bullets. Nearly all equalled, and several bettered the accuracy they had obtained with their own hand-made match bullets. Later that year, at the national championship shoot in DuBois, Pa., Ray conducted a similar experiment, with a considerably larger number of shooters firing a 5-shot match at 100 yards, all shooting the Speer 52 gr. match bullets, which Ray supplied. The results were not quite so impressive as they had been at Seattle, but a number of the shooters equalled or bettered the groups they had fired with their own bullets, and Clyde Hart shot a .0745" group to threaten the national record for that course.

In 1956, Sierra Bullets made their new 53 gr. bench rest bullets available and these bullets have given match winning accuracy to a number of shooters. Both the Speer and Sierra bench rest bullets are the hollow point type, similar to the home-made soft-swaged match bullets. Due to the large number of bench rest match competitors already using their own home-made match bullets, these new production bullets have had to enter a highly competitive field and have probably thus been handicapped in demonstrating their potential worth in competition.

In the Fall of 1957, Frank Snow of Sierra Bullets sent me a sample 100 of a new hollow piont 110 gr. .30 cal. bullet they had developed and wrote me that on their test range these bullets had been giving exceptionally fine accuracy when fired from a heavy Model 70 rifle at high velocities. Shooting these bullets in my own hunting rifles gave me far better accuracy than I had ever obtained from any other 110 gr. bullet I had ever shot, at least equalling the accuracy from 125 gr. Sierra bullets which had previously given best average accuracy in the same rifles. These bullets are of the same deep cavity, hollow point type as the home-made soft-swaged bullets. The 110 gr. bullet form, length of jacket and length of bore-bearing diameter seems identical with the 125 gr. bullet. The over-all length of the 125 gr. bullet (with 1/10" exposed lead tip) is .900 inch. The over-all length of the 110 gr. bullet is .800 inch (same as length of the 125 gr. bullet jacket) with a ¼" deep nose cavity. Sierra Bullets has also made available a .270 cal. bullet of similar type in 90 gr. weight which is reported to give equally excellent accuracy. These light bullets of excellent accuracy, with velocity approaching the 3500 f.p.s. range, flat trajectory to 200 or 300 yards and fast bullet expansion, permits big game rifles to pinch-hit as varmint shooting guns.

Bullets of the same type in the same caliber and weight, be they home-made or of commercial quantity production, may not and frequently will not give the same accuracy results when fired from various rifles with various loadings. Bullets of the same make, but from lots made at different times, may not give identical accuracy results when fired from the same rifle with the same loading. Manufacturers of bullets must set acceptable tolerance ranges for their bullets and bullets from a lot made when dies are new will not be identical with bullets

(Continued on Page Eighteen)

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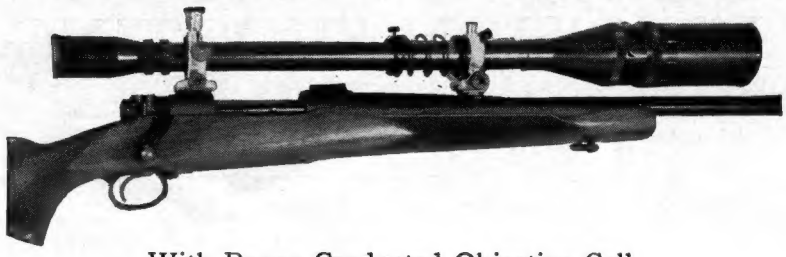

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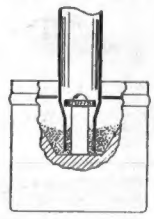

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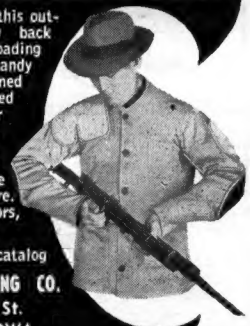

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Bits About Bullets

(Continued from Page Seventeen)

from a lot made when the dies are reaching the end of their useful life. Even the home-maker of soft-swaged bullets will find that bullets from different lots he makes may not give identical accuracy results. Even the do-it-yourself bullet maker's dies will wear in time, one lot of jackets may have a slightly different temper from another lot from the same maker (or have other slight differences), and some bullet makers contend that atmospheric conditions (temperature and humidity) have some effect on the way bullets "draw" and thus create slight differences between lots of bullets made at different time, which may affect accuracy one way or the other. All this creates problems for the shooter in search for the ultimate in accuracy.

The user of commercial quantity produced bullets will need to test every lot he purchases for accuracy. The shooter who purchases his bullets locally, one or two boxes of 100 at a time, may find that his next purchase of bullets of the same make, from the same dealer, may not be from the same lot and may give somewhat different accuracy results with the same loadings. The shooter who purchases his bullets in lots of 1,000 or more in the same caliber, weight, type and make from one of the supply houses that specialize in ammunition components has a better chance of getting all bullets from the same lot and of the same accuracy characteristics. If the accuracy average is above average or exceptionally good, he does at least have a bigger supply of bullets to hoard for his more exacting accuracy requirements (if he is wise enough to do that).

The do-it-yourself bullet maker has the advantage of being able to experiment in his effort to produce the ultimate in bullet accuracy for his own use in his own guns. He may experiment with different makes of jackets, with various bullet weights, little changes in his operating technique, etc., etc. Since he will usually make bullets in lots of at least a few hundred at a time, he will have a reasonable number of bullets to hoard for exacting requirements if testing proves some particular lot of bullets to be of superior accuracy (if he also is wise enough to do that).

The advent of the powerful, high velocity handgun cartridges and guns to shoot them makes jacketed handgun bullets desirable or even necessary. That desire or need is creating a growing group of do-it-yourself makers of swaged and jacketed handgun bullets. Some shooters of considerable experience with making and shooting the swaged and jacketed handgun bullets contend that these bullets give accuracy superior to conventional cast lead-alloy bullets, even at the velocities common to the older handgun cartridges and as used for conventional target shooting. If this contention is upheld by results obtained in target competitions, there will no doubt be a general swing to this type of bullet for handgun shooting. This subject of handgun bullets deserves a lot of discussion but this writer will have to leave that to people of experience who better know what they are writing about.

Quality cast bullets to fit both rifle and load for the best in obtainable accuracy are doubtless fully as important as is the case with jacketed bullets, and desirable results perhaps harder to obtain. But on this subject, too, this writer is going to avoid "putting his foot in his mouth" and will leave discussion to others.

In conclusion, leaven all the foregoing with the fact that the most perfect of bullets will be "duds" when fired from an inaccurate rifle. If a trial of two or three bullets of good accuracy reputation for the caliber of rifle being tested does not give the accuracy that may reasonably be expected, when fired under reasonably good weather conditions for testing for accuracy (early morning or late afternoon calm, generally), then start searching that weapon for defects or deficiencies which may be correctable before further testing for bullet accuracy. The bullet is a most important factor in obtaining superior accuracy from rifled weapons but **IT IS NOT** a cure-all for deficiencies and faults in the weapons.

The Maine State Rifle and Pistol Association has changed its name to the Pine Tree State Rifle and Pistol Association, Inc., effective December 1, 1958.

"The Tournament Circuit" is normally dull during December but will be getting under way full blast with the new year.

Too much "Teachout" in this issue. You can probably "tell him off" or dish out more worthwhile dope. You are invited to do either or both.

We have just learned that nearly 200 competed in the Pennsylvania State .30 caliber championships at Indiantown Gap in November, but don't know who did win.

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NEW HOLLOW POINTER UNIT

The FORSTER-APPELT MFG. CO. will now supply a .30 caliber rifle "Hollow Pointer" attachment for their basic cartridge case trimmer tool. The new .30 caliber unit may be had with cavity in either 1/16" drill size or ⅛" drill size.

No doubt the larger cavity will be more effective for faster expansion with cast bullets, or G. I. bullets at moderate velocity. Tests indicate better expansion with a drilled cavity than a cast hollow point bullet, and it is pretty generally known that a straight cavity is faster expanding than a conical type.

Sales of the .30 caliber unit may prove that other rifle calibers are needed, especially for cast bullets.

Kent Bellah

Handbooks

(Continued from Page Nine)

including this one, believe inaccuracy results if gas checks or jackets shed in flight.

Speer Products Co., Lewiston, Idaho, have a fine book of rifle dope, the Speer Handloaders Manual. Over 1,650 chronographed loads list muzzle and 200 yard velocity with Speer bullets. Wildcat Rifle Loads is a good companion book with about the same number of loads, plus additional dope and technique, assembled at tremendous cost. Either volume is a buy at $2. The $1. Speer Ballistics Calculator quickly determines bullet drop, mid-range trajectory, remaining velocity and bullet energy.

Gil Hebard Guns, Box 1, Knoxville, Illinois, has a new 50¢ book for handgunners, that is far more than a catalog. Excellent articles by the great in the handgun field include Gil himself, Bill Tony, Bill Joyner, Richard Shockey and James Clark. Details are listed on the available fine custom autos by Shockey and the equally good ones by Clark. All popular U. S. and foreign handguns are listed, with loading tools, equipment and many items not found in most catalogs, including Machine Rest Testing Service at low cost. Gil's clear descriptions on many items will differ from the cut and dried factory cut lines. This really helps one select the right items. You get more good handgun dope for half a buck in the 88 pages than any place I know of, mostly slanted to precision accuracy for paper punchers.

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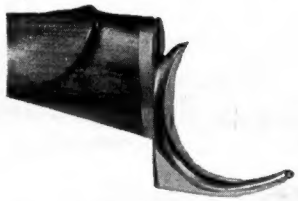

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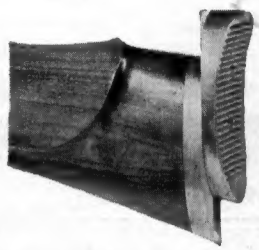

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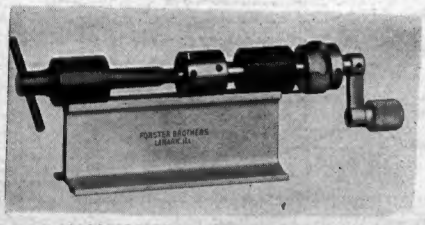

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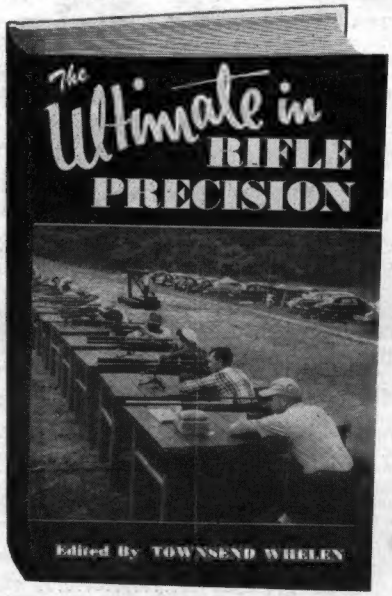

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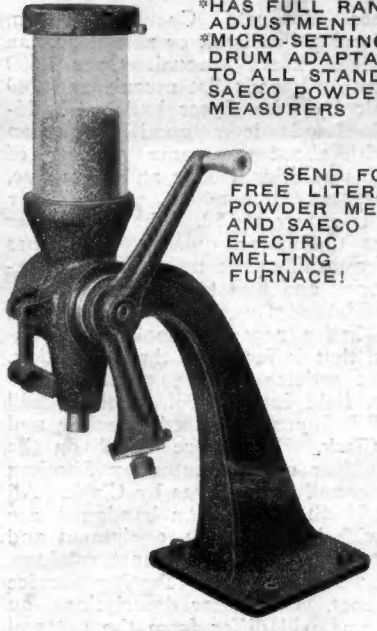

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